

A COURSE OF STUDY

FOR

The Elementary Schools of Pennsylvania

The Department of Public Instruction

1914

PROPERTY OF THE SCHOOL DISTRICT

**HARRISBURG, PA.:
WM. STANLEY RAY, STATE PRINTER
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DEPARTMENT OF PUBLIC INSTRUCTION.

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COURSE OF STUDY FOR THE ELEMENTARY SCHOOLS OF PENNSYLVANIA.

INTRODUCTION.

AIMS AND PURPOSES.

The tendency towards centralization in the industrial world is one of the notable phenomena of modern times. Economic necessity has urged these great combinations to search out and to eliminate waste and to stop leaks. In educational circles, there is a greater need for organization and conservation, because the profits are computed in terms of human life and effort.

A course of study for the elementary schools aims to organize the material in the various subjects, to establish standards for promotion and classification, to give teachers a workable basis for their courses of instruction, and to suggest some eliminations from a curriculum that is generally admitted to be over-crowded. The need of some plan for the promotion of desirable uniformity is very apparent. Many communities of Pennsylvania have a large floating population. The average tenure of office in a given position by the teachers is very short, and statistics show that the average experience of teachers is but four years. These factors that tend to keep schools in a continual state of ferment may be neutralized in part by a uniform course of study. It is not expected that all the schools can adopt everything suggested, but it is hoped that the course may be thoroughly studied and that as a result of such study, it may be perfected in future editions.

The need of a course is very evident in country schools where adequate supervision is lacking and where inexperienced teachers are most numerous. Supt. Stetson of Maine says: "Experience has made it clear that it is as easy to grade a rural as a city school. The only danger lies in making the divisions too numerous, and attempting too much in the way of details." If this course will accomplish only a part of the work that needs to be done in the organization of the material contained in the curriculum for the elementary schools, it will not have been in vain.

TIME REQUIRED FOR THE WORK.

The outlines of this course of study are based on eight years of nine months each. School districts with terms of seven or eight months should take nine years to do the work. In the preparation of these outlines for the elementary schools, the average pupil has been kept in mind. Some pupils will be able to do more, others less. If the local needs are not supplied, make changes in the details but follow the general plan. It will doubtless be necessary for some teachers to supplement the course, while others will be compelled to omit certain portions of it. Teachers should keep in mind the general aim of the course.

HOW TO STUDY.

One of the chief aims of the school is to inculcate in the pupils proper methods of study. In the preparation of lessons for class work, pupils should be taught how to select the points and how to organize them for effective discussion. In determining their relative worth, topics must be judged by a standard of values. To this end teachers are urged to purchase Dr. Frank M. McMurry's "How to Study and Teaching How to Study."

CORRELATION.

It is important to establish a close relation of studies in the pupil's mind. The teacher's method of instruction is of vital significance in fixing relations. Reviews are so important that they should occupy a large part of the time devoted to instruction. Only when the subject matter is approached from several sides and examined from different points of view, does it become a living force in the life of the child.

BOOKS AND LIBRARIES.

Throughout the course numerous lists of books are recommended. It will not be possible for every school to secure all of these, but teachers can accomplish much in this direction, if additional books are purchased each year.

In many communities, the school has an unrivalled opportunity to get good literature into the home. In order to fulfill this important mission, every school needs as large a library as it can afford. A list of carefully selected books is printed, so that teachers and directors may be aided in making a choice of books for their libraries. If no library exists in your school, establish one this year and thus enroll among the progressive schools which seek to enlarge their opportunities.

To avoid much correspondence with individual publishers, lists of books desired, may be submitted to the Baker and Taylor Co., 33-37 East Seventeenth St., New York City, who will quote prices upon any number ordered.

ACKNOWLEDGEMENTS.

Portions of the course have been submitted to leading educators in all parts of the State in order to get their criticisms and suggestions. Due acknowledgement is hereby made to the many friends of popular education who have contributed in any way to the preparation of this course. Many courses have been consulted in order that the experience and wisdom of others might assist in its preparation.

The Department is under special obligation to Charles Scribner's Sons and to the Committee of Eight of the American Historical Association for permission to reprint their outline for the course in History. In order to use this outline successfully, the original book, containing directions, methods and references, should be in the hands of every teacher.

PROPERTY OF DISTRICT.

The course of study is the property of the school district and should be kept in the teacher's desk for ready reference and study. The need of this provision is apparent. If the course is adopted in a given school, no delay or loss should occur because of the frequent change in teachers. Copies of the course should be treated with the same care as text-books.

SECOND EDITION.

The demand for the elementary course of study has been so great that the second edition of 30,000 copies was exhausted in less than two years. Few changes have been made in this reprint because the time element is so important in applying a course of study. Most of the schools have not been able, to accumulate an experience in two years that would warrant many suggestions.

With the expansion of the field of activity of the Department of Public Instruction under the code, a demand exists for more definite outlines in Drawing, in Industrial Education, and in Agriculture. Much new material has been added under these topics.

The course in History has challenged the thought of our leading educators and is proving to be very satisfactory in many schools. A list of books of reference that will prove to be helpful in teaching this course in History has been inserted.

TIME SCHEDULE.

The minimum number of minutes to be devoted each week to the different activities in the several grades in school.

| Years or Grades. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------------------------------------|-----|-----|-----|-------|-------|-------|-------|-------|
| Opening exercises, | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Reading and literature, | 450 | 420 | 360 | 300 | 240 | 180 | 150 | 150 |
| Language, | 75 | 75 | 75 | 100 | 100 | 150 | 150 | 150 |
| Spelling, | 00 | 75 | 75 | 75 | 75 | 100 | 100 | 100 |
| Penmanship, | 75 | 75 | 100 | 100 | 75 | 75 | 75 | 75 |
| Arithmetic, | 75 | 100 | 150 | 150 | 150 | 150 | 150 | 150 |
| Geography, | 00 | 00 | 00 | 100 | 100 | 100 | 120 | 120 |
| Nature study, | 50 | 50 | 50 | | | | | |
| History, | 50 | 50 | 50 | 50 | 100 | 120 | 120 | 120 |
| Drawing and constructive work, | 150 | 150 | 150 | 150 | 150 | 150 | 160 | 150 |
| Physical education, | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Physiology, | 45 | 45 | 60 | 60 | 60 | 60 | 60 | 60 |
| Recess, | 75 | 75 | 75 | 75 | 75 | 75 | 50 | 50 |
| Music, | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Unassigned time, | 240 | 160 | 130 | 115 | 150 | 160 | 150 | 150 |

The length of the school day according to the time allotment in this schedule is five hours; as the length of the day varies in the several grades of different school systems, the amount of unassigned time will vary, allowing less for a shorter day and more for a longer one.

ENGLISH.

The general aim of the course in English is unity of closely related subjects. Reading, literature, spelling, language lessons, technical grammar, oral and written composition, memory work and penmanship, are all treated as properly belonging to English. The various topics here mentioned may be regarded as lines of human experience. The unifying principle in that experience is its relation to the child's social needs.

Considerable emphasis is put upon the constructive work in English. From the first to the eighth grade oral composition is given a prominent place. If this plan is consistently followed, there will be less occasion for the criticism that pupils finishing the elementary grades do not express themselves clearly and freely.

It has been the practice of many schools to place undue stress upon the formal study of grammar in the grades, with very little gained that is practical for the majority of the pupils. Enough grammar has been retained to keep the practical and the formal work well balanced. A view expressed by the Committee of Fifteen

is, that technical grammar never can educate the child in the use of a higher and better English style. Only familiarity with fine English works will secure it.

Selections of suitable readings and poems for memorizing in each grade are recommended. While the lists are by no means exhaustive, they suggest the kind of literature that is to be used. McMurry says,

“Our chief concern is not with the formal use of literary materials for practice in reading, but with the moral culture, conviction, and habit of life they may foster. Nor have we chiefly in view the art side of our best literary pieces. Appreciation of beauty in poetry and of strength in prose is admirable and should contribute powerfully to the main purpose. Coming in direct and vivid contact with manly deeds or with unselfish acts as personified in choice biography, history, fiction, and real life, will inspire children with thoughts that make life worth living. Neither formal skill in reading nor appreciation of literary art can atone for the lack of direct moral incentive which historical studies should give. All three ends should be reached.”

GRADE ONE.

“The first steps in learning to read must be: Getting vivid pictures of objects and events worth thinking and reading about; larger, clearer, more definite thoughts; and higher ideals of beauty of form and sounds. This can be done by (1) contact with real things worth while to know; (2) enlarged experience; (3) expression in word and by hand; (4) ear familiarity with literature; (5) increasingly accurate and distinct pronunciation with ever better voice modulation; (6) association of mental pictures with written forms and their sound; (7) increasing ability to instantly, at the sight of the written form, give its meaning to others in spoken words.”

MRS. ALICE WOODWORTH COOLEY,

N. E. A. Proceedings, 1905.

1. By common consent reading is considered the most important study in all grades. Children entering School from the different homes present to the teacher many difficulties. Indefinite or vague notions, incorrect use of words, few ideas and lack of words to express them, physical defects, inability to co-ordinate and articulate clearly, these are a few of the things to be overcome. The means used in teaching beginners to read are (1) the characters known as letters and their sounds in combination, (2) words in sentences. These should be taught from the blackboard. The teacher by the skillful use of crayon, scarcely ever fails to arouse an interest and create a desire in children to learn to read. The material selected

at the beginning should be in keeping with the contents of the children's minds, the words they use, the things in which they have an interest, such as games, pets, friends, and about things of which they know something. After a few weeks of work from the blackboard the primer should be taken up in connection with this work. A combination of all the methods will likely bring the best results. From the very beginning the child's attention must be fixed on thought-getting and thought-giving. Teach beginners to read by the use of words and sentences. Letters represent sounds, and form words; the latter stand for ideas and when properly combined into sentences form thoughts. Reading in this wise functions in thought-habit. Continue to keep thought prominent, though other means are used to master the mechanics of reading and to make progress in reading.

The formal work of phonics should be introduced a few weeks after the opening of the school. The aim of phonic drills is to furnish the children with the ability to help themselves in the mastery of new words. The phonic elements at first must be given to the pupils by the teacher, sounding words for them to recognize. Aside from the primary aim of the drill it develops attention and ear-mindness. The drills should be given daily. Let them be short but vigorous. The blackboard, cards, and charts may be used for this work.

2. The material chosen for language work must be adapted to the child's powers of understanding and appreciation, his tastes and interests. It should awaken feeling. Fairy tales, fables, stories and poems furnish an abundance of material for oral reproduction. Only the best should be used. The stories should be retold by the children many times during the term. In telling the story, the educative value mainly depends upon how well the child gets the main points and upon the ability acquired to give them to others. Other material for oral language work may be taken from the child's environment and daily activities such as hygienic topics, games, animals, their care, food and habits, well selected pictures and other topics in which they have a personal interest.

In reading to the pupils the aim should be to create a desire to learn to read and to awaken noble feelings and emotions. For children to live daily under the influence of deep and noble feelings will be valuable moral training.

3. Use a slant system in writing. Instruct the pupils how to hold the pencil or crayon, how to place the paper and the left hand. Writing on the blackboard and on paper should be very large. If ruled paper is used the space should be two inches wide. To get large expression and ease in writing require pupils to use the arm movement. Use the large pencil.

MEMORY WORK.

At least one poem each month and if short, two or more poems should be learned.

| | |
|------------------------------|-------------------|
| The Wind, | Stevenson. |
| The Swing, | Stevenson. |
| Time to rise, | Stevenson. |
| Duty of Children, | Stevenson. |
| Little Birdie, | Tennyson. |
| Snow Flakes, | Mary Mapes Dodge. |
| Little Pussy, | Taylor. |
| Who Has Seen The Wind? | Rosetti. |
| Sleep, Baby, Sleep, | From the German. |
| The Baby, | MacDonald. |
| The Sunbeams, | Poulson. |
| A Dewdrop, | Eugene Field. |
| Little Things, | Anon. |
| Mother Goose Rhymes, | |

READING AND LITERATURE.

| | |
|---|----------------------|
| Story of Ab, | Stanley Waterloo. |
| Stepping Stones to Literature, | First Reader. |
| Child Life, | First Reader. |
| The Sleeping Beauty, | Grimm's Fairy Tales. |
| The House in the Wood, | Grimm's Fairy Tales. |
| Mother Goose Rhymes, | Lee and Shephard. |
| The Little Red Hen—from "Baby Days," | Mary Mapes Dodge. |
| The Ginger Bread Man—from "Baby Days," | Mary Mapes Dodge. |
| The Ant and the Dove, | Aesop's Fables. |
| The Lion and the Mouse, | Aesop's Fables. |
| Golden Rod and Aster,—in Nature Myths and Stories, | Cooke. |
| Spotty's Family and the Sleeping Apple, in Child World. | |
| Nature Songs and Games, | |
| The Little Tin Soldier, | Anderson. |
| The Discontented Pine Tree, | Anderson. |
| The Three Bears—in Fairy Stories and Fables, | Baldwin. |
| The Old Woman and Her Pig, in Heart of Oak, Series No. 1. | |
| Mother Stories, | Maud Lindsay. |
| Stories of the Brownies, | Bingham. |
| Stories from the Mother Goose Village, | Bingham. |
| Water Faries, | Bingham. |
| Apple Seed John in Child World. | |

GRADE TWO.

1. The reading in this grade should follow along the same lines as suggested in the previous grade. There should be drills on the sounds of the letters already learned and on many new combinations. These drills should be frequent as a preparation for reading though generally separate from the exercise in reading. Use the blackboard, chart, first and second reader. Other readers and literature of same grade may be used. The teacher should read to the pupils stories in which they will likely be interested. Have the pupils reproduce them. Use the interesting features for sentence work. Call attention to the essential parts of the sentence. Review frequently. Lay emphasis on expression and getting the thought. The child must be fairly sure he knows the words and the meaning in the sentence or paragraph before reading it aloud. Much practice in reading care-

fully selected material in the second grade should enable the child to read with ease and delight.

2. Language work in this grade in the main should be oral. It is natural and more expedient for the child to talk than to write and, therefore, he needs the practice for acquiring correct expression and the use of good words. The material for oral language work will be found in reproducing stories read both by the class and to the class, in having the children relate experiences and incidents in their lives, and in copying poems and paragraphs. It is a good plan occasionally to have a child tell to the class a story that the others have not read. This gives it a real purpose. Writing from memory, riddles, Mother Goose tales, and choice selections learned will be found interesting and useful.

3. The spelling lists should be suitable words selected from those the children use and from the reading lessons. Four to six new words each day will be sufficient. Place these on the blackboard, sound and pronounce with the pupils. They should use the words in original sentences to make sure the meanings are known. The ability of a child of this grade to use a word correctly should be sufficient. The words may be copied in note books for study and review. The words should be written from dictation. Review the words of the previous lesson together with the more difficult one of several days.

4. In writing, practice letters, words, and sentences from the teacher's copy. Use the free-arm movement in drills and all forms of writing. All writing exercises must be done with care, else the writing period will have little value. Correct position of body, feet squarely on the floor, legs not crossed, head held up, pen held lightly between the index and larger finger with the support of the thumb—all these are important in learning to write. Keep at it outside of the writing period.

MEMORY WORK.

At least one poem each month and if short, two poems.

| | |
|----------------------------------|------------|
| Little Boy Blue, | Field. |
| Little Brown Hands, | Krout. |
| Father, We Thank Thee, | Emerson. |
| The Owl, | Tennyson. |
| Winter-time, | Stevenson. |
| Bed in Summer, | Stevenson. |
| Who Stole the Bird's Nest? | Child. |
| Daisies, | Sherman. |
| Autumn Fires, | Sherman. |
| Wizard Frost, | Sherman. |
| Seven Times One, | Ingelow. |
| Fairy Folk, | Allingham. |
| Lady Moon, | Houghton. |
| The Seal's Lullaby, | Kipling. |

READING AND LITERATURE.

Suitable material for this year.

| | |
|--------------------------------------|-------------------|
| Hawthorne, | First Reader. |
| New Century, | First Reader. |
| Stepping Stones to Literature, | Second Reader. |
| Child Life, | Second Reader. |
| Graded Classics, Book II, | Norvell. |
| Hiawatha, | Last part. |
| Fishing and Hunting, | Mott and Dutton. |
| Eskimo Stories, | Mary E. E. Smith. |
| Fables and Folk Stories, | Scudder. |

STORIES TO BE TOLD OR READ TO THE PUPILS.

| | |
|--|------------------|
| Story of Ruth, | Bible. |
| The Christmas Story, | Bible. |
| How Six Traveled, | Grimm. |
| Bow-Wow and Mew-Mew, | Craik. |
| Children of the Cliff and Lodrix, | Wiley and Edick. |
| In Field and Pasture, | Dutton. |
| Pomegranate Seeds, Tanglewood Tales, | Hawthorne. |
| Story of Clytie, in Nature Myths and Stories, | Cooke. |
| Legend of Arbutus, in Child World. | |
| Why the Sea is Salt, in How to Tell Stories to Children, | Bryant. |
| Robin Redbreast, | Allingham. |
| Cat That Travelled Alone, and Other Just-So Stories for Little Children, | Kipling. |

GRADE THREE.

1. Continue the exercises in phonics, and study words by syllables as a preparation for reading and ready pronunciation. Review the more difficult combinations of the previous grades. The controlling ideas in the selection of reading material are, the child's interests, capacity to understand and appreciate the kind of literature that awakens noble feelings and high ideas of living. At least two books of the third reader grade, together with selections of like grade should be read. The child should be able to read smoothly and with natural expression.

Give attention to articulation and enunciation, standing while reading, exercises in breathing and how oral reading may be continued for a long time without fatiguing the reader. These things should not obscure the interest in the story. Reading suitable and interesting selections to the pupils should be continued through this grade.

2. The reading lessons, topics of interest to the children, their individual experiences, stories and games will provide ample material for practice in oral composition. Verb forms like has, have, was, were, saw, seen, go, went, gone, and others should be practiced in sentences until used correctly. Encourage correct speaking as it precedes correct writing. For form have the pupils copy sentences, stanzas and paragraphs. Have pupils distinguish between the question and statement. Call attention to a few of the things such as capitals, period, question mark and quotation marks. No formal instruction or rules should be given in these topics. The pupils might, during the latter part of the year, try to write stories and letters to relatives and friends. This will be stimulating and give them written forms of expression.

3. For exercises in spelling select the words from the reading lessons and the words used by the class. To spell well the child must consciously attend to the words, in regard to both form—arrangement of letters—for eye-training and the sound, for ear-training. In oral spelling have pupils indicate the syllables (not pronouncing them.)

Four new words like the word *beautiful*, given each day with the words frequently misspelled, should be sufficient. Words like right, might, night, sight, and words of other series should not be included in the word lists. The words of this kind should be built up in class and need little study on the part of the pupil. Teach the pupils to study the words in spelling by observing the similarities and differences in the lists. Clear enunciation will greatly aid in teaching spelling.

4. Use a slant system. Use arm-movement in drills and all work in penmanship. Practice writing on paper from copies and exercises on the blackboard. Pen and ink should be used in this grade. Good form, ease of execution, and fair speed are desired. Insist upon proper sitting position, natural way of holding the pen, neatness and care in all the work.

READING AND LITERATURE.

| | |
|--------------------------------------|-------------|
| Heart of Oak Readers, No. 2. | |
| New England Stories, | Hawthorne. |
| Seven Little Sisters, | Andrews. |
| Each and All, | Andrews. |
| Fifty Famous Stories Retold, | Baldwin. |
| The Little Lame Prince, | Craik. |
| In the Days of Giants, | Brown. |
| Nature Myths, | Holbrook. |
| Docas, the Indian Boy, | Snedden. |
| Hiawatha, | Longfellow. |
| Stepping Stones to Literature, | No. 2. |
| Fables and Folk Stories, | Baldwin. |
| Poems Every Child Should Know, | Mabie. |

STORIES TO BE TOLD OR READ TO THE PUPILS.

| | |
|---|-----------------------|
| Christmas—Legend of St. Christopher, | Hofer. |
| The Christ Story—The Story of Joseph, | Bible. |
| Uncle Remus Stories, | Joel Chandler Harris. |
| The Man Who Married the Moon, | Lummis. |
| Old Greek Stories, | Firth. |
| At the Back of the North Wind, | Macdonald. |
| Stories and Poems for Children, | Celia Thaxter. |
| Timothy Shoes, | Ewing. |

MEMORY WORK.

At least one poem each month and if short, two should be learned.

| | |
|---|-------------|
| Sweet and Low, | Tennyson. |
| The Snowdrop, | Tennyson. |
| The Great, Wide, Beautiful World, | Rands. |
| The Children's Hour, | Longfellow. |
| Good Night, | Hugo. |
| Wishing, | Allingham. |
| The Brown Thrush, | Larcom. |
| My Shadow, | Stevenson. |
| Thanksgiving Day, | Childe. |
| How the Leaves Come Down, | Coolidge. |
| To a Child, | Wordsworth. |
| Speak Gently, | Anon. |

GRADE FOUR.

1. By the fourth year the mechanics of reading should be fairly well mastered. Children should be able to get the thought both from the printed page and from listening to others read. The pupils must become independent in handling new words, both as to correct pronunciation and meaning. They should have formed the habit of reading for appreciation and some ability should have been acquired in determining what is good literature. In addition to the readers used in this grade, stories of considerable length will greatly stimulate the attentive powers.

2. An elementary study of the sentence may be introduced into the language work. Teach the form and use of the statement and question. Practice in the use of verbs in sentences together with the pronouns, I, he, she, it, we, they, us and them. Teach that parts of the sentence serve only to "tell more of the subject" or "more about the predicate." Give some attention to the possessive forms, punctuation of easy passages, use of capitals beyond the work of the previous grade. Have pupils observe the use of punctuation and quotation marks in the reading lessons.

Continue oral composition. See previous grade. Give children an opportunity to express in writing reproduction stories either told or read or found in a picture, experiences in actual adventure and happenings. Have letter writing for good form and style.

3. The work in spelling should be similar to that of the previous grade. The words may be taken from different sources. Six new words each day with a review of those frequently misspelled should be sufficient for pupils of average ability. In case a text-book is used, the number of words assigned will depend on how many will require study. In oral spelling have the pupils indicate the syllables (not pronouncing each). This will help them in writing the words. Correct by sentences. "I ought to put 'i' before 'e' in spelling piece." This is encouraging language work, originality and good spelling.

4. Give daily practice in writing exercises. Aim at uniformity of letters, speed and legibility. All the written work must be well done. Have pupils use at all times the free-arm movement. This gives ease and writing can be continued without fatigue. Urge pupils to sit properly as it gives comfort and is healthful.

READING AND LITERATURE.

| | |
|--|-----------------------------------|
| Water Babies, | Kingsley—as arranged by Stickney. |
| Alice in Wonderland, | Carroll. |
| Adventures of a Brownie, | Craik. |
| Stepping Stones to Literature, III, | Arnold and Gilbert. |
| Madam How and Lady Why, | Kingsley. |
| Thor and His Hammer,—in Norse Tales, | Mabie. |
| Ten Dwellers, | Dopp. |

| | |
|----------------------------------|------------|
| A Dog of Flanders, | Ouida. |
| Tangle Wood Tales, | Hawthorne. |
| Jackanapes, | Ewing. |
| Little Folks Magazine. | |
| Through the Looking Glass, | Carroll. |
| The Pied Piper, | Browning. |
| Twenty-third Psalm, | Bible. |

Stories to be read to the pupils.

| | |
|---------------------------------|-------------|
| Wonder Book, | Hawthorne. |
| First Jungle Book, | Kipling. |
| Stories of Long Ago, | Kupfer. |
| Rab and His Friends, | Brown. |
| Selections from Hiawatha, | Longfellow. |
| One Hoss Shay, | Holmes. |

MEMORY WORK.

At least one poem each month should be memorized.

| | |
|--------------------------------------|---------------------|
| The Brook, | Tennyson. |
| Spring, | Howell. |
| Beautiful Things, | Jane Taylor. |
| To the Fringed Gentian, | Bryant. |
| Robert of Lincoln, | Bryant. |
| September, | Helen Hunt Jackson. |
| The Sandpiper, | Celia Thaxter. |
| The Whistler, | Clinton Scollard. |
| The Village Blacksmith, | Longfellow. |
| The Mountain and the Squirrel, | Emerson. |
| Jack Frost, | Gould. |
| The Twenty-third Psalm, | Bible. |
| The Circus Day Parade, | Riley. |

GRADE FIVE.

1. Reading in this grade will be for information and enjoyment. The teacher's greatest difficulty is in the selection of suitable reading material. The literature may include stories of animals, of adventure, of travel, and of biography. Aim to give the children good literature, in which they shall be personally interested, literature with high ideals of courage, strength and perseverance. The long story is better suited to gain these ends. That interest in the story, character and scenes may grow, the reading must be sufficiently rapid. Children like movement. Before taking up a new story or reading lesson enough time should be spent upon the introduction to awaken an interest. Sometimes a few words and proper names need explanation; in other stories, a bit of history or geography will clarify the reading lesson, or calling up selections already familiar to the pupils when there is similarity in the stories, will aid in arousing interest. Make constant use of the blackboard, maps, dictionaries and reference books. Teach the pupils how to use these. Encourage pupils to read aloud at home. Assign paragraphs from supplementary reading for discussion at home to be used for oral composition at school the next day. For an exercise let all the pupils read a paragraph or story silently. Then with books closed have them tell

it. The educational value depends on how well they get the main points and their ability to give them in sequence to others.

2. Oral language work should form an important part in the several studies. Literature and history frequently call for narration and description; arithmetic and nature study require explanation and description. Make use of all the opportunities at hand for the purpose of improving the language of the pupils. Continue story-telling. Written language work should be taken from the other studies and topics within the experiences of the pupils. The amount of preparation previous to writing depends very largely on the freshness of the subject-matter in the minds of the children. In order to have a clear notion of what is required, make an outline and keep it before them. The outline of the subject, as well as the composition should in most cases be short. With few exceptions have the writing done in the class room. All the compositions should be read and corrected. Give the writers an opportunity to make suggestions on their own compositions. The errors, most frequently made, will form topics for language work. Mistakes in spelling, punctuation, use of capitals and quotation marks, failure to properly indent the paragraphs and careless writing require attention. Give instruction in letter-writing, including the simple business letters and notes of invitation, formal and informal. Teach the possessive case, use of nouns and pronouns, use of verbs, like may and can, got, lie and lay, set and sit. The use of adjectives, and verbs, and conjunctions in sentences should receive a brief treatment. Show that phrases and clauses are means of explaining the subject and predicate.

3. For formal spelling lists select the words from the several school studies and the spelling book. From six to ten new words, together with those frequently misspelled each day will be sufficient. Have oral spelling first and see that the syllables are indicated (not pronounced). Give attention to clear enunciation, correct pronunciation, meaning and use of the words. The dictation exercise, consisting of short fable, short quotation from prose or poetry, selections from other studies will be very valuable to the pupils in acquiring the spelling habit. The difficult words should be written upon the blackboard and the spelling observed. Again have the pupils study a selection and then dictate it to them as a lesson in spelling.

4. For exercise and directions in writing see previous grades. See that written work in the several studies is prepared with care. The dictation exercises will furnish ample practice for speed and ease of execution.

FOR READING AND STUDY.

| | |
|---------------------------------|----------------|
| King of the Golden River, | Ruskin. |
| Heidi, | Johanna Spyri. |
| Tanglewood Tales, | Hawthorne. |
| Wonder Book, | Hawthorne. |

| | |
|---|------------------------------|
| Black Beauty, | Sewell. |
| Selections from Knights of the Round Table, | Frost. |
| How Cedric Became a Knight, | In Stepping Stones, Book IV. |
| St. Nicholas Magazine, | |
| Story of the First Christmas Tree, | Van Dyke. |
| Mr. Wind and Madam Rain, | Paul de Musset. |
| Tales of King Arthur, | Farrington. |
| Wabeno, the Magician, | Wright. |
| Dream Fox Story Book, | Wright. |
| The Posy Ring, | Wiggin and Smith. |
| Fanciful Tales, | Stockton. |
| Squirrels and Other Fur Bearers, | Burroughs. |
| Ten Boys, | Andrews. |
| Greek Heroes, | Kingsley. |
| Story of Ulysses, | Lamb. |
| Water Babies, | Kingsley. |

MEMORY WORK.

At least one poem each month should be learned.

| | |
|---------------------------------------|----------------|
| The Psalm of Life, | Longfellow. |
| Excelsior, | Longfellow. |
| Landing of the Pilgrims, | Hemans. |
| Standing by the Flag, | Wilder. |
| To-day, | Carlyle. |
| Woodman, Spare That Tree, | Morris. |
| The Gladness of Nature, | Bryant. |
| The Planting of the Apple Tree, | Bryant. |
| Aladdin, | Lowell. |
| Barbara Fritchie, | Whittier. |
| Before the Rain, | T. B. Aldrich. |
| Under the Greenwood Tree, | Shakespeare. |

GRADE SIX.

1. Interest, capacity to understand and a sympathetic appreciation of the beautiful, good and true will be the guiding principles in the selection of the reading material. Stories of adventure and travel, the epic poem, the romantic writings of Scott and the legends of King Arthur will generally appeal to the children. These form a basis for language work and give opportunities for reproduction, simple character study and picture study. For further suggestions see previous grades.

2. For written composition work select definite interesting topics. These may be taken from the following sources: school studies, accounts of personal experiences, reports of observations, the different forms of written letters, games and plays. Let the composition be short and frequent that the habit of written expression may become natural and easy.

Teach the pupils how to make and use outlines. The amount and kind of preparation for written composition depends on the nature of the subject. Give individual attention to frequent repetition, misplacing of phrase modifiers, poverty of words, incorrect punctuation, form of manuscript and careless penmanship.

3. The study of grammar should include instruction in the following parts of speech: noun, plural of a few nouns of irregular forms, pronoun, verb, adjective, adverb and interjection. Teach phrases and clauses as forms of modifiers. Develop each by using numerous examples of various forms. Use the reading lessons in connection with this work. From the very beginning show that the part of speech to which a word belongs depends on its use in the sentence. There should be some work in analysis of simple and easy sentences. Give practice in grouping and combining several statements.

4. Select words from school studies, spelling books and other sources. The number of words will depend on their difficulty. Perhaps, ten new words will be sufficient for the average pupil. The dictation exercise should be required almost daily. Teach through the dictionary, diacritics. See suggestions in previous grades.

5. In penmanship follow the work of previous grades. Each teacher should be familiar with the work of all the grades. Insist that all the written work be well done. At the end of this grade the writing habit should be fairly well formed. Individuality in writing should receive fair criticism.

READING AND LITERATURE.

To be read by the pupils in class.

| | |
|---|---------------------------------------|
| Old Greek Stories, | Carpenter and Baker's Reader, Book V. |
| Norse Stories, | Carpenter and Baker's Reader, Book V. |
| King Arthur Tales, | Carpenter and Baker's Reader, Book V. |
| German Tales, | Carpenter and Baker's Reader, Book V. |
| The Voyages of Sinbad, the Sailor, | Carpenter and Baker's Reader, Book V. |
| Tales of the Wayside Inn, | Longfellow. |
| Joseph and His Brethren, | Bible. |
| How They Brought the Good News from Ghent to Aix, | Browning. |
| Adventures of Ulysses, | Lamb. |
| Wonder Book, | Hawthorne. |
| A Man Without a Country, | Hale. |
| The Huskers, For an Autumn Festival, | Whittier. |

To be read to the pupils.

| | |
|--|-------------------|
| The Listening Child, | Thatcher. |
| Myths Every Child Should Know, | Mabie. |
| Golden Numbers, | Wiggin and Smith. |
| The Story of the Other Wise Man, | Van Dyke. |

MEMORY WORK.

At least one poem each month should be memorized.

| | |
|----------------------------------|-------------|
| The Builders, | Longfellow. |
| Ring Out, Wild Bells, | Tennyson. |
| Parts from Snow Storm, | Emerson. |
| March, | Bryant. |
| The White Footed Deer, | Bryant. |
| Abou Ben Adhem, | Hunt. |
| Christmas Everywhere, | P. Brooks. |
| There's a Song in the Air, | Holland. |
| A Man's a Man for a' That, | Burns. |
| Nobility, | Carey. |
| The Blue and the Gray, | Finch. |
| Old Ironsides, | Holmes. |

GRADE SEVEN.

1. The material selected must be good literature. It should include the poems and stories of the heroic type, the romantic novel and a few biographies of famous men. Test the judgment of the pupils by asking them to select a piece from a given reader. Find the reason for the particular choice. Likewise give them a chance to choose a poem from a list suggested to the class for memorizing. In planning the reading material for the pupils, keep in mind their varied interests and tastes. At the same time it is the teacher's duty to arouse dormant interests and direct ill-formed tastes through properly selected material into fixed habits of reading for appreciation.

2. Continue oral composition. Hold pupils to clear and correct statements in topical recitations. Practice composition writing as in previous grades. Give attention to making outlines, unity of the composition, the larger features of the paragraph, use and choice of words. Let the subjects for description, narration and exposition cover a large field. Include letter writing of all forms, reports of assigned readings, character sketches from literature and life.

In correcting compositions lead the pupils to see the errors and suggest ways of improvement. Aim to accomplish a few vital points. Put emphasis on good form, arrangement of the composition on paper, use of capitals, possessives, punctuation and correct spelling.

3. The work of grammar should be closely related to that of composition. There will be numerous applications for it. The topics covered this year include the different kinds of sentences as declarative, interrogative, imperative and exclamatory; the sentence according to structure as simple, complex and compound; the different parts of speech; distinction between plurals and possession; verbs according to use—transitive, intransitive and copulative; functions of subject, predicate and complement; adjective and adverbial modifiers; and analysis of easy sentences of different kinds. Many of these should be taken from literature and other studies. In analyzing sentences, put emphasis on the use of the word or element. Much diagraming is of doubtful value. The definition of a part of speech, subject, sentence, etc., should follow its discussion instead of preceding it. It will be excellent practice to develop the definitions with the class.

4. For suggestions in spelling see grade six.

5. The penmanship of all written work must be done with care. Practice exercises are of little value if all the rest of the writing is neglected. Aim at speed and ease of movement. Dictation and note-taking furnish the kind of practice desired. Ten minute drills for movement should be given frequently.

FOR READING AND STUDY BY THE PUPILS.

| | |
|---|---------------|
| Christmas Carol, | Dickens. |
| The Man Without a Country, | Hale. |
| Sharp Eyes, | Burroughs. |
| Sohrab and Rustum, | Arnold. |
| The Gold Bug, | Poe. |
| Herve Riel, | Browning. |
| Incident of the French Camp, | Browning. |
| Horatius at the Bridge, | Macaulay. |
| Red Cap Tales, | Crockett. |
| The Great Stone Face, | Hawthorne. |
| Being a Boy, | Warner. |
| Grandmother's Chair, | Hawthorne. |
| The Spy, | Cooper. |
| Concord Hymn, | Emerson. |
| Gettysburg Speech, | Lincoln. |
| Poems, | Longfellow. |
| Uncle Tom's Cabin, | Stowe. |
| Ivanhoe, | Scott. |
| A-Hunting of the Deer and Other Essays, | C. D. Warner. |

MEMORY WORK.

| | |
|-------------------------------|----------------|
| The Sea, | Procter. |
| Plant a Tree, | Lucy Larcom. |
| To a Waterfowl, | Bryant. |
| To a Mountain Daisy, | Burns. |
| Bannockburn, | Burns. |
| The Chambered Nautilus, | Holmes. |
| The Old Year, | Tennyson. |
| Gettysburg Speech, | Lincoln. |
| Horatius at the Bridge, | Macaulay. |
| The Song of the Camp, | Bayard Taylor. |
| The Bugle Song, | Tennyson. |
| Hohenlinden, | Campbell. |

GRADE EIGHT.

1. Choose reading material along lines already suggested. The reading should largely be for appreciation, that it may function in the reading habit. Pupils should be trained to detect what is good and what is trashy literature.

In the study of a selection give attention to a few of the chief characters as portrayed by the author, its historical foundation, the geography of the country, style of writing, paragraph and sentence structure. There should be a careful and intensive study of at least three or four selections. Outlines of these should be developed in the class, setting forth the larger features of the story or poem. By means of apt questions and proper discussions application can be made to the conduct of the life of to-day. Here is an opportunity for ethical instruction.

2. Composition work as suggested in previous grades. This year written English should make greater demands upon the pupils than heretofore. Give opportunity for individual expression. Put emphasis on clearness and accuracy of statement. Topical recitations in

history, geography and other studies should be constantly employed to improve the work in English. For written work select topics from a wide range of subjects.

3. The grammar should be closely correlated with the written work in English. This furnishes motive for a systematic study of technical grammar. Definitions, generally should follow the exercises, examples and illustrations, rather than make them the objective point at the outset.

The topics of the previous grades should receive a more detailed treatment. Require both analysis and synthesis of the simple, complex and compound sentences. Continue the instruction in independent and dependent clauses until pupils can readily discriminate between them. Train pupils to recognize abstract names, verbs of state and being, adverbs modifying adjectives and other parts of speech; and train them in the use of the infinitive and participle. Study verbs as to (1) predicate, (2) agreement with subject, (3) use—transitive (active and passive), intransitive, copulative, (4) form—regular, irregular, redundant, defective, (5) modifications—inflection, modes, tenses, voice.

Give a more detailed study of nouns—classes, gender, case; pronouns—kinds, person, gender, number and case; adjectives—use, kinds, comparison; adverbs—use, kinds, comparison.

Give some attention to the study of words, such as synonyms, homonyms, antonyms. Some study bearing on derivation of words with the more common prefixes and suffixes. Pupils should early form the habit of consulting the dictionary. Daily study and use of new words in original sentences will greatly improve the work in English.

Take up some work in syntax, learning only the more common and useful rules. Impress upon the pupils' minds that the syntax of a word means the word's relation to another word or words in the sentence.

4. Use spelling book and words selected from various sources. Teach the pupils how to study spelling. Search out the methods of the poor spellers and aim to improve them. Hold individuals responsible for poor work in spelling. Careful pronunciation, clear enunciation and attention to syllables will generally improve bad spelling. In this connection teach the pupils the value of the use of the dictionary both as to proper meaning of the words sought and their correct pronunciation.

5. In writing keep all the suggestions of the previous grades to the front. Hold the careless writers to drill exercises and writing periods. Frequent drills in movement, dictation exercises, note taking and all written forms, comprise the work in penmanship in this grade.

READING AND LITERATURE.

For reading and study.

| | |
|---|-------------|
| Evangeline, | Longfellow. |
| The Use of Mountains, | Ruskin. |
| The Fall of the Leaf, | Mitford. |
| A Drop of Water on Its Travel, | Buckley. |
| Snow Bound, | Whittier. |
| Tale of Two Cities, | Dickens. |
| Sir Galahad, | Tennyson. |
| A Spring Relish and Other Papers, | Burroughs. |
| Under the Willows, | Lowell. |
| Creation Hymn, | Addison. |
| Walden (selected portions), | Thoreau. |
| Deserted Village, | Goldsmith. |

SUITABLE MATERIAL FOR GENERAL READING.

| | |
|------------------------------------|-------------|
| Huckleberry Finn, | Mark Twain. |
| Tom Brown's School Days, | Hughes. |
| Little Men, | Alcott. |
| Little Women, | Alcott. |
| The Last of the Mohicans, | Cooper. |
| The Cotter's Saturday Night, | Burns. |

Study proper way to use newspapers and magazines.

MEMORY WORK.

At least one poem should be learned each month.

| | |
|---|-------------|
| Snow Bound (parts of), | Whittier. |
| Violet, Sweet Violet, | Lowell. |
| Daffodils, | Wordsworth. |
| O Captain; My Captain, | Whitman. |
| The Last Leaf, | Holmes. |
| Old Glory, | Riley. |
| To a Skylark, | Shelly. |
| Recessional, | Kipling. |
| Warren's Address, | Pierpont. |
| Opportunity, | Sill. |
| Thou, Too, Sail On, | Longfellow. |
| What is so Rare as a Day in June, | Lowell. |

BOOKS FOR TEACHERS.

| | |
|--|-----------------------------|
| How to Teach Reading, | G. S. Hall. |
| | D. C. Heath & Co. |
| The Aims of Literary Study, | Hiram Corson. |
| | Macmillan Co. |
| Teaching the Language Arts, | B. A. Hinsdale. |
| | D. Appleton & Co. |
| Reading—How to Teach It, | Sara Louise Arnold. |
| | Silver, Burdette & Co. |
| Lectures on Language and Linguistic Methods in the School, | S. S. Laurie. |
| | Macmillan Co. |
| Reading in Public Schools, | Briggs and Coffman. |
| | Row Peterson & Co., Chicago |

- Methods of Teaching Primary Reading in Ten Cities.
Educational Publishing Co.
- Essentials of Teaching Reading, Sherman Reed.
Fairy Tales and How to Act Them, Mrs. Hugh Bell.
Longmans, Green & Co.
- Poems by Grades, Gilbert & Harris.
Scribners.
- The Child's Calendar Beautiful, Beeson.
The Burton—Terry Wilson Co.
- Words and Their Ways in English Speech, Greenough and Kittridge.
Macmillan Co.
- A Study of English Words, Anderson.
American Book Co.
- Posy, Ring, Wiggin and Smith.
McClure, Phillips & Co.
- A Book of Verses for Children, Lucas.
Henry Holt & Co.
- Child's Garden Beautiful, Stevenson.
Rand, McNally & Co.
- Teaching of English in the Elementary and Secondary Schools, Chubb.
Report of the Committee of Fifteen.
American Book Co.
- How to Study Literature, Heydrick.

ARITHMETIC.

At the Cleveland meeting in 1908 the National Education Association included the following among its principles: "We recommend the subordination of highly diversified and overburdened courses of study in the grades to a thorough drill in essential subjects; and the sacrifice of quantity to an improvement in the quality of instruction. The complaints of business men that pupils from the schools are inaccurate in results and careless of details is a criticism that should be removed."

In the preparation of the course in arithmetic the elimination of non-essentials was kept in mind. Of the one hundred replies received in response to a letter sent out by the Department of Public Instruction to city, borough and county superintendents, about ninety per cent. favored omitting from the course, alligation, annuities, averaging accounts, circulating decimals, equation of payments, exchange, progressions and savings bank accounts, while others favored the simplification of additional subjects.

With these obsolete topics removed and others simplified it seems reasonable that, for all ordinary purposes, the subject of arithmetic should be completed in the elementary grades. Supt. Stetson says:

“One of these days we shall be wise enough to limit the work in arithmetic to the four fundamental rules, common fractions, decimals, the simple applications of denominate numbers and percentage. This work will be illustrated and rendered helpful in mental training by using material which the child collects, and using it in such a way as to make valuable his every day experience with his schoolmates, his home and other associates. We shall be content to leave involution, evolution, alligation, permutations, foreign exchange, annual interest and the finding of the solid contents of the frustrum of a pyramid for later years, and sometime we shall be wise enough to leave them for years that will never arrive.”

The knowledge of this study received in the elementary schools, is not to be considered a sufficient preparation for teaching it. This belief is responsible for much of the poor teaching of this very important subject. Teachers need a much greater body of material and a maturer organization of it for a widely different purpose, than those do who are not engaged in teaching.

In support of the present day tendency to co-ordinate the larger interests of the children, the practical needs of the community and the capabilities of the pupils in the elementary grades, Prof. David Eugene Smith says; “Arithmetic is taught both for its usefulness in daily life and for the training that it gives the mind in reasoning, in habits of application, and in exactness of statement. Most of the mental discipline of arithmetic can be secured from those portions that may be called practical, and therefore the practical side of arithmetic may safely be emphasized.”

BOOKS FOR TEACHERS.

| | |
|--|---------------------|
| Teaching of Elementary Mathematics, | Smith. |
| Special Method in Arithmetic, | C. A. McMurry. |
| The Psychology of Numbers, | McLellan and Dewey. |
| Laboratory Method of Teaching Mathematics, | Hornbrook. |
| The Teaching of Mathematics, | Perry. |
| Graded Number Work, | F. W. Robbins. |
| Primary Arithmetic, | Young and Jackson. |
| The Teaching of Mathematics, | Young. |
| Course of Study in Arithmetic, | R. F. Anderson. |
| Methods in Arithmetic, | John Walsh. |

GRADE ONE.

1. Teach the idea of number to children through actual contact with things. At first the work must be entirely oral. Teach the names of numbers and the characters which represent them. The transition from things and images to symbols should be gradual. Cease to use objects as soon as the pupils understand the constructive process. Use the blackboard freely. Train the ear as well as the eye. Encourage measuring and counting.

2. Forming and counting numbers to 100, with objects; without objects. Reading and writing numbers to 100; reading dates on calendars; reading numbers on pages of books. The addition tables as far as the sums of ten should be thoroughly mastered. The following method is given for teaching the forty-five combinations:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| — | — | — | — | — | — | — | — | — |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| | | | | | | | |
|---|---|---|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| — | — | — | — | — | — | — | — |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| | | | | | | |
|---|---|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| — | — | — | — | — | — | — |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| | | | | | |
|---|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 4 | 4 | 4 | 4 | 4 | 4 |
| — | — | — | — | — | — |
| 5 | 6 | 7 | 8 | 9 | 10 |

| | | | | |
|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 |
| 5 | 5 | 5 | 5 | 5 |
| — | — | — | — | — |
| 6 | 7 | 8 | 9 | 10 |

| | | | |
|---|---|---|----|
| 1 | 2 | 3 | 4 |
| 6 | 6 | 6 | 6 |
| — | — | — | — |
| 7 | 8 | 9 | 10 |

$$\begin{array}{r} 1 \quad 2 \quad 3 \\ 7 \quad 7 \quad 7 \\ \hline 8 \quad 9 \quad 10 \end{array}$$

$$\begin{array}{r} 1 \quad 2 \quad 1 \\ 8 \quad 8 \quad 9 \\ \hline 9 \quad 10 \quad 10 \end{array}$$

3. Teach the signs $+$, $-$, $=$. Give work as follows:

$$\begin{array}{l} 3+1=? \quad 3+2=? \quad 3+?=5 \quad ?+5=8 \quad 6+?=8 \\ 8-2=? \quad 6-3=? \quad 7-?=3 \quad ?-5=2 \quad 3-?=1 \end{array}$$

$$\begin{array}{r} 7 \quad 8 \quad 9 \quad 6 \quad 4 \quad 8 \quad 8 \quad 1 \quad 4 \quad 7 \quad 5 \quad 6 \\ -2 \quad -5 \quad -4 \quad -3 \quad -2 \quad -3 \quad +1 \quad +5 \quad +2 \quad +2 \quad +4 \quad +2 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad 8 \quad 6 \quad 5 \quad 9 \quad 8 \quad 7 \quad 6 \quad 9 \quad 5 \quad 8 \quad 9 \\ \hline 5 \quad 4 \quad 2 \quad 1 \quad 5 \quad 5 \quad 2 \quad 4 \quad 6 \quad 3 \quad 2 \quad 2 \end{array}$$

4. Denominate numbers. Teach the use of actual measures; as the foot, yard, pint, quart, gallon and pound. Have the children perform exercises in measuring. Teach value of coins, cent, five-cent piece and dime.

5 Problems involving one step.

There are two pints in one quart. How many pints in two quarts?

Three pins and five pins are how many?

Four cents and two cents are how many?

Three marbles and four marbles are how many?

How many cents in a nickel and one cent?

6. Fractions. Half of a foot-rule. Half of four, six or eight. Fourth of eight. Third of six, nine.

GRADE TWO.

"In the child's first dealing with numbers there must be the group of things, the whole quantity to start from; and in every step of the initial stage the idea of the whole to be measured is to be kept prominent."

McLELLAN and DEWEY.

| | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 11 | 33 | 16 | 44 | 66 | 21 | 54 | 17 |
| +22 | +11 | +81 | +22 | +33 | +23 | +32 | +82 |
| — | — | — | — | — | — | — | — |

In subtraction extend the work of grade 1.

| | | | | | | | | |
|--------|---------|-------|---------|-----|-----|-----|----|-----|
| 14—5=? | 14—?=9. | 9—3=? | 7—2—3=? | | | | | |
| 43 | 53 | 42 | 54 | 66 | 38 | 27 | 18 | 77 |
| —11 | —11 | —12 | —14 | —16 | —18 | —17 | —8 | —27 |
| — | — | — | — | — | — | — | — | — |

In both addition and subtraction aim to cultivate accuracy and rapidity.

4. Teach the signs \times , \div . Teach the tables through 5×9 . Show that multiplication is a form of addition. Put objects used as counters into threes, fours, sixes.

Interpret

"2 times 3 are 6 ($2 \times 3 = 6$)" to mean 3 taken two times.

"2 times 4 are 8 ($2 \times 4 = 8$)" to mean 4 taken two times.

"2 times 5 are 10 ($2 \times 5 = 10$)" to mean 5 taken two times.

Division within the tables, as $27 \div 3 = ?$ $45 \div 9 = ?$ $27 \div 9 = ?$

Multiplicands with 2, 3 and 4 as multipliers. Short division with the same numbers as divisors. No. "carrying" or "borrowing."

| | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---|
| 2 | 3 | 1 | 2 | 4 | 8 | 7 | 6 | 9 | 7 | 9 | |
| $\times 3$ | $\times 3$ | $\times 3$ | $\times 4$ | $\times 2$ | $\times 4$ | $\times 3$ | $\times 2$ | $\times 2$ | $\times 4$ | $\times 3$ | . |
| — | — | — | — | — | — | — | — | — | — | — | |
| | 6 | 8 | 3 | | | | | | | | |
| | $\times 4$ | $\times 2$ | $\times 4$ | | | | | | | | |

| | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 2)4 | 2)8 | 2)12 | 2)16 | 2)18 | 2)20 | 2)24 | 2)14 | 4)12 | 3)12 |
| 3)21 | 3)24 | 4)24 | 3)30 | 4)36 | 3)33 | 3)27 | 3)15 | 3)18 | 4)20 |

5. Denominate numbers. Review the value of coins and the units of length as yd., ft., inch. Teach the units of quantity, as pint, quart, gallon; the units of time, month, week, day, hour, minute. Give the pupils a variety of exercises in measuring. Let them measure the length and width of their desks giving the number of feet and number of inches over; the distance the blackboard is from the floor; the length of the blackboard; the height of the teacher's desk or table. See exercises in measuring.

6. Fractions. 1-2 of 4, 6, 8, 10; 1-3 of 6, 9, 12, 15; 1-4 of 8, 12, 16; 1-5 of 10, 15; 1-6 of 12.

7. Problems. Give one step problems. These should be limited to the work done in the fundamental operations.

*MEASURING.

In number work measuring is fundamental. Two children should work together, the one marking the end of the measure with a piece of crayon, and the other placing the end of the rule on the line for the next measure, both children counting. The number counted may be expressed as "nine yards and a little more," etc. First and second years.

EXERCISES.

1. Measure the width of the room in yards and count the length.
2. Fill a quart measure with a pint measure and count the pints.
3. Fill a gallon measure with a quart measure and count the quarts.
4. Measure the width of the room in feet and count; the length.
5. Measure the length of the blackboard in yards; in feet; the length of the table in feet; the width; the length of the desk; your height.
6. Cut six-inch measures out of cardboard. Measure a foot rule with them and tell how many six-inches in a foot. Measure a yard stick.
7. Measure three-inch measures, and measure the foot rule and the yard stick.
8. Fold papers two inches wide and four inches long into inch squares and count them.
9. Fold papers four inches square into inch squares and count them.
10. Fold papers three inches by five inches into squares and count.
11. Measure strips of paper nine inches long with the three-inch measure; twelve inches long; fifteen inches; eighteen inches.
12. Make four-inch measures, and measure strips of paper eight, twelve, sixteen and twenty-four inches, respectively.
13. In like manner measure strips of paper twelve, eighteen and twenty-four inches, respectively, with a six-inch measure.
14. Make foot rules out of cardboard and divide into inches only. Count the number of inches in them. How many inches in a foot?
15. Find the middle of the rule. How many inches in each part?
16. Is your book a foot long? A foot wide? How many inches long and wide is it?
17. Find a point three inches from the one end of the rule. Count the number of inches from there to the other end. In the same manner take five, seven, nine, eleven, two, four, six, eight and ten inches.
18. Measure three yards on the board. Measure the distance with a foot rule and count the feet.
19. Measure four yards in the same manner, and count the feet.

*(Reprinted by permission from Graded Number Work by Supt. F. W. Robbins.)

20. Draw a rectangle on the board two feet by six feet. Divide it into square feet. How many square feet in one row. How many in the rectangle? How many two-square feet in the rectangle?

GRADE THREE.

1. Counting and reading numbers. Review work of previous grades. Read numbers to 10,000. Roman numerals to L. Aim to give children clear notions of forming and reading numbers. Give frequent drills on the orders. Counting by 6's to 72, by 7's to 70, by 8's to 72.

2. Oral addition as suggested in previous grades. Review combinations studied in Grades 1 and 2. Early in the year the following may be taken as types: $20+30$, $22+30$, $26+30$ and $22+32$, $25+32$.

In this oral work there should be no "carrying." Written work with four-figure numbers including dollars and cents. The use of the decimal point in this grade should be looked upon as separating dollars and dimes. Avoid long columns of figures in addition.

3. Subtraction as suggested in grade 2. Also as it is used in making change. Use toy money or pieces of paper with the value represented. Teach subtraction with borrowing as follows:

Series (a)

| | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| 82 | 53 | 94 | 71 | 83 | 62 | 33 |
| —25 | —26 | —85 | —43 | —64 | —43 | —29 |
| _____ | _____ | _____ | _____ | _____ | _____ | _____ |

Series (b)

| | | | | |
|-------|-------|-------|-------|-------|
| 643 | 892 | 431 | 342 | 584 |
| —329 | —658 | —213 | —228 | —336 |
| _____ | _____ | _____ | _____ | _____ |

Series (c)

| | | | | |
|-------|-------|-------|-------|-------|
| 826 | 523 | 422 | 728 | 624 |
| —441 | —171 | —181 | —495 | —261 |
| _____ | _____ | _____ | _____ | _____ |

4. Multiplication tables through 8×12 . Division within the tables, $64 \div 8 = ?$ $49 \div 7 = ?$ $80 \div 8 = ?$ $72 \div 8 = ?$

Written work with multiplicands of three and four orders and multipliers of one and two figures.

Division with dividends of numbers of three and four orders and the divisor one figure and an exact multiple.

5. Denominate numbers. Review the denominate units of the previous grade. Draw largely from the daily business transactions for examples of measuring and comparing, as selling apples by the bushel, half-bushel, peck, half-peck and quarter-peck; milk by the quart, pint and half pint. Have the pupils find out what articles are sold by the bushel, pound, quart, dozen and yard. Compare the different units of measure.

6. Fractions as 1-2 of 16, 3-4 of 16, 2-3 of 9, 2-5 of 20, 4-5 of 20, 3-4 of 12. Fractional parts as a form of short division, e. g., 1-2 of 728 \div 2)728 1-3 of 363 \div 3)363.

7. Problems arising from actual daily needs should be given in connection with the drills. One step problems, perhaps, will be sufficiently difficult. Two step questions may be used the latter part of the year.

GRADE FOUR.

1. *Counting.* Reading and writing numbers. Review work of previous grade. Counting by 8's, 9's, 10's, 11's and 12's. Read and write numbers to 1,000,000 for the fundamental operations. Review the orders, units, tens, hundreds, thousands. Teach the periods: units, thousands and millions. Roman numerals to include dates as found on public buildings. There should be much rapid oral work with small numbers.

2. *Fundamental Operations.* Give drill work in addition and subtraction. Examples of four and five orders and four addends. Avoid columns of great length. Show pupils the necessity of checking results. Aim at accuracy and rapidity. Secure the first by checking, the latter by having pupils work on time limit. Multiplication tables through 12 x 12 thoroughly learned. Give more difficult examples in multiplication and division than in the previous grade. Multipliers and divisors of two orders. Avoid large divisors as they tire and confuse young pupils and only waste time.

3. *Measurements.* Continue the work of the earlier grades. Long measure, and square measure, tables developed and memorized. Exercises in measuring the school ground, walk, city lot and street. Other tables of denominate numbers may be systematized and learned.

4. *Fractions.* Explain use of terms. Reduction of simple fractions. Additions and subtraction of common fractions used in business transactions. Give special attention to the small fractions 50c \div 2 = $\frac{1}{2}$ of a dollar, 25c \div 4 = $\frac{1}{4}$ of a dollar, 75c \div 3 = $\frac{3}{4}$ of a dollar. Remember in the great mass of business the small fraction is chiefly used.

Decimal fractions based on United States money may be taught in this grade.

Problems may now involve two steps. These should be closely related to the child's interest and be adapted to his mental ability. Give a portion of the recitation period to mental drill. Problems with fractional parts e. g.: Find the cost of $\frac{3}{4}$ of a yard of ribbon at 20c a yard. At 36c a dozen what will six buttons cost?

In solving or giving analysis of problems, the thought side predominates. The answer is a secondary matter. Many problems may be interpreted or the plan of solution given. Insist that pupils

read carefully the problems before attempting to solve them. In written work the following steps should be kept in mind: (1) Thoughtful reading of the problems. (2) Plan of solution. (3) Performing the operations. (4) Verifying the results.

GRADE FIVE.

1. Teach formation, notation and numeration by both the Arabic and the Roman systems, until these subjects are clearly understood by the pupils. For suggestions see earlier grades. Give frequent short drills until mastered.

2. *Fundamental Operations.* Continue rapid oral drill in review of the four operations. Let the written work be more difficult than the previous grade. Introduce tabulated forms, involving statistics, find totals and verify results. Give some practice with abstract numbers, but most of the work should consist of actual problems. Put emphasis upon proof of work, upon accuracy and rapidity. Have work done on time limit.

3. *Factors.* Exact divisors, multiples, cancellation. These should receive only an elementary treatment. Use exact divisors of small numbers in reducing fractions to lowest terms. Use multiples of small denomination in addition and subtraction of fractions. There is little occasion for the use of large multiples. Show that cancellation is a short process of multiplication and division of fractions: e. g.: $1\text{-}2 \times 2\text{-}5 = 1\text{-}5$.

4. *Fractions.* Oral. Give special attention to such relations as $12\text{ }1\text{-}2\text{ cts.} = 1\text{-}8\text{ of a dollar}$, $16\text{ }2\text{-}3\text{ cts.} = 1\text{-}6\text{ of a dollar}$, $8\text{ }1\text{-}3\text{ cts.} = 1\text{-}12\text{ of a dollar}$, $6\text{ }1\text{-}4\text{ cts.} = 1\text{-}16\text{ of a dollar}$, $33\text{ }1\text{-}3\text{ cts.} = 1\text{-}3\text{ of a dollar}$, $662\text{-}3\text{ cts.} = 2\text{-}3\text{ of a dollar}$.

Written. Addition and subtraction of simple fractions. Multiplication and division of easy fractions.

5. *Decimal fractions.* Teach forming, reading and writing of decimals of three orders, e. g.: .365. Changing fractions to decimals and decimals to fractions, e. g.: $1\text{-}2 = .5$, $1\text{-}5 = .2$, $1\text{-}4 = .25$, $4\text{-}5 = .8$, $.45 = 9\text{-}20$, $.60 = 3\text{-}5$. Give problems involving decimals.

6. *Denominate Numbers.* Teach tables in use. United States money. Avoirdupois weight. Long measure. Dry measure.

Reduction of simple denominate terms as 3 qt. 1 pt. to pints, 3 bu. 3 pk. 4 qt. to pts., 3 rods, 2 yds., 1 ft. to feet.

7. Bills and accounts representing actual transactions should be written out by the pupils. Teach pupils how to keep records of frequent happenings. Frequently call for them.

8. *Problems.* Review work in measurements of previous grades. Give work of the same kind though more difficult. Insist upon accuracy.

Give problems to find whole when part is given, and the reverse. Give numerous practical problems. Many need only to be interpreted.

GRADE SIX.

1. Review the four fundamental operations by giving a great variety of questions. Make all reviews vigorous. Aim at accuracy and rapidity. Give attention to correct forms of expression in the analysis of problems. Encourage "checking" and proving results.

2. Factors, exact divisors and multiples should receive a thorough treatment. Aim to make all the work of such a character that it will have a practical bearing on the work in fractions. Avoid many questions in which unusual multiples are to be found.

3. Fractions. Give drill in reading and writing of fractions of all kinds. Give a great variety of problems in fractions involving the four fundamental operations. Generally, avoid long questions in connection with fractions.

Teach thoroughly the decimal fractions. There should be much practice in reading, writing, adding, subtracting, multiplying and dividing decimal numbers. Put emphasis upon the importance of the decimal point. Give practice in changing common fractions to decimals and decimals to common fractions until facility in handling them is acquired. The success of the work in percentage depends largely upon the pupils' knowledge of decimal fractions. This furnishes a motive for thoroughness. A very simple treatment of percentage and its applications may be taught in this grade.

4. Denominate amounts. Review all the tables of previous grades. Limit operations in reduction to three successive denominate units. Require some drill in the four fundamental operations of compound amounts, restricting questions to tables in use as time, angles and arcs. Give special attention to finding the difference between dates, e. g.: from July 15 to Sept. 7, or Jan. 15, to March 3, 1910.

5. Review work in measurements. Introduce a large number of practical problems. In problems involving the idea of measuring show why the unit is important. Include easy questions in carpeting, plastering, painting and other lines of industry.

6. Bills and accounts. Have pupils bring bill heads. Explain them to the children. Require sufficient work in making out bills to insure good form, speed and accuracy. All exercises of this kind should have a direct bearing on the needs of modern business. Teach pupils why one should take a receipt when paying a bill. Take up a simple method of keeping accounts (not formal book-keeping). Explain the terms debtor and creditor. Urge pupils to keep an account of an actual business, as expense of operating a farm or cost

of keeping a pig or cow, the grocer or butcher bill each month, incidental and necessary expenses in the home and of other transactions. These are questions in which the pupils will likely be interested and also furnish motive for work.

GRADE SEVEN.

1. There should be frequent drills on the four fundamental operations as applied to whole numbers, common and decimal fractions. Review reading and writing of decimals. Put special emphasis on the importance of fixing the decimal point properly in multiplication and division of decimals. Pupils should readily change common fractions to decimals and conversely.

2. Denominate amounts. Review all the tables. Make a comparative study of weights and measures as found in business transactions. Give problems bearing on occupations, as that of the butcher baker, grocer, dry-goods dealer, carpenter, mason, painter, paper-hanger, coal-dealer, farmer, milk-dealer and other lines a community may have.

Latitude and longitude. Pupils should be able to find the differences in latitude and longitude of any two places on the earth's surface. Standard time makes it unnecessary to teach longitude and time. Standard time should be taught in connection with geography.

3. Percentage and its application. Show the relation of percentage to common fractions and decimals. Give special attention to the reading and writing of percentage equivalents of the commonly used fractions in business. Pupils should be thoroughly familiar with the following:

$$1-2 = .5 = 50 \text{ per cent.}, 1-3 = .33 \text{ } 1-3 = 33 \text{ } 1-3 \text{ per cent.}$$

$$1-8 = .12 \text{ } 1-2 \text{ per cent.}, 3-8 = 37 \text{ } 1-2 = 37 \text{ } 1-2 \text{ per cent.}$$

$$5-8 = .62 \text{ } 1-2 = 62 \text{ } 1-2 \text{ per cent.}, 7-8 = .87 \text{ } 1-2 = 87 \text{ } 1-2 \text{ per cent.}$$

$$3-4 = .75 = 75 \text{ per cent.}, 2-3 = .66 \text{ } 2-3 = 66 \text{ } 2-3 \text{ per cent.}$$

$$1-6 = .16 \text{ } 2-3 = 16 \text{ } 2-3 \text{ per cent.}, 5-6 = .83\frac{1}{3} = 83\frac{1}{3} \text{ per cent.}, 1-5 = .2 = 20.$$

$$3-5 = .60 = 60 \text{ per cent.}, 5-4 = 1.25 = 125 \text{ per cent.}$$

There should be much oral work in connection with percentage and extensive application of its principles to every day life. Pupils should calculate the percentage of misspelled words, of the absentees and of tardy pupils.

Apply the principles of percentage to discount, profit and loss, commission, customs and duties, insurance and taxes. The problems on these topics should be made practical. In making the application of percentage to interest show that the element of time is the only new factor. Explain time and demand notes. Require pupils to write

each. Spend most of the time computing interest for years and days, provided the time is more than a year, if less than a year in days alone. Find the interest and amount of a principal for time between given dates. Herein lies the basis for bank discount.

GRADE EIGHT.

1. Review work in this grade should include a knowledge of principles as applied to the four fundamental operations of whole numbers, common and decimal fractions. Require "checking" results. Use two methods in division of fractions. A few arithmetical principles thoroughly mastered by the pupils will be of more value to them than the committing of many rules. Require the solution of many miscellaneous problems. In giving analysis of problems, insist upon the use of accurate terms and logical arrangement of steps. Accept nothing else.

2. The following topics should be considered under the head of business arithmetic:

(a) Explanation of business terms. (b) Commercial papers as the check, drawing of check, and different kinds of endorsements. (c) Negotiable and non-negotiable notes, writing notes and how endorsements may be made, estimating bank interest. (d) Different ways in use of sending money.

3. Brief treatment of stocks and bonds. Explain the terms, corporation, stock exchange, buying and selling stock and brokerage. Refer to quotations in newspapers. Problems in the main should treat of buying and selling stock.

4. Ratio and simple proportion.

5. In involution pupils should be familiar with the squares and cubes of small numbers. Teach the square root and cube root of small numbers, including integers, fractions and decimals. Restrict problems to scope of the work in this topic.

6. Measurements of (1) surfaces as the triangle, rectangle, trapezoid, circle, cylinder and sphere, (2) volumes of prism, pyramid, cylinder, cone and sphere. (3) Similar surfaces. In the solution of problems in mensuration require graphic illustrations.

NATURE STUDY AND GEOGRAPHY.

The formal study of geography does not find a place in the course before the fourth school year, hence the preparation for that work is informal in character and observational in method. The material is so abundant from which selection may be made for the work of the primary years in the realm of nature, that every teacher and every community may be satisfied with the variety and breadth of the course offered.

Someone has said that "Nature study is learning those things in nature that are best worth knowing, to the end of knowing those things that make life most worth living." Jackman says, "Life, in the final analysis the individual's own life, is the center of all study, and the value of any particular subject must be ultimately estimated by what it contributes toward a better comprehension of it." Judged by this standard, the value of the study of the living things in the child's world cannot be over-estimated.

While in the early years, the facts learned will be somewhat unorganized and fragmentary, yet enough about the plants and animals studied should be given to make the name and recognition sure; enough of the study of the habits of plants and animals, kinds of food, ways of eating, modes of locomotion, means of defense or protection, homes, power of adaptation to different seasons and environment, until the pupil realizes that the animals, insects, and plants about him are alive, living their lives before him, and for him, if he will only look; that they have certain needs like his, and that they are all struggling to supply these needs that they may live and be perpetuated.

True science work does not stop with mere seeing, hearing, or feeling but includes interpretation of the things perceived, for these perceptions are the foundation of reasoning. Conversation lessons and compositions should be based upon the material learned in the study of natural phenomena and indeed the work in English and science may very easily be correlated in these early years.

The presence of living things in the school room, like birds, insects, fishes and plants, will supply much material for this work. School gardens should be maintained wherever possible, and in their absence the children should be urged to plant flowers and vegetables in their home gardens or yards.

Excursions under the direct supervision of the teacher either in or out of school hours, may be made most profitable, if the teacher has carefully planned the work to be done in advance. The objects of observation, the important questions to be asked, and the material to be correlated, should be thoroughly understood.

Geography is a form of nature study and its introduction should be accomplished in accordance with the above principles. While it is impossible to teach the subject without a text-book, yet the text must be supplemented very largely with books of travel and description, magazine and newspaper articles, pictures, and cabinet collections. Teachers should form the habit of preserving and classifying such helpful material as may be found in current literature.

Probably no other study has so many vague notions to contend with as has geography. The popular idea is that geography treats of the

distant and unknown; and maps and lines often form the actual concepts of countries and rivers. But real geography is so concrete that at least half of all its notions may be found in types in every Pennsylvania community, and a study of geography with the school-house as the center of interest will be reasonable and logical. The geography of the school district, of the county, of the State, of the eastern part of the United States, of the nation, of North America, of Europe and of the world seems to be the order of interest and of relative importance.

BOOKS FOR TEACHERS.

Nature Study:

| | |
|--|---------------|
| Nature Study and Life, | Hodge. |
| The Nature Study Idea, | Baily. |
| Nature Study, | Jackson. |
| Our Insect Friends and Foes, | Cragin. |
| Brooks and Brook Basins, | Frye. |
| Stories Mother Nature Told Her Children, | Jane Andrews. |
| Butterfly Book and Moth Book, | Holland. |
| Bird Life, | Chapman. |
| Insect Life, | Comstock. |
| How to Make a School Garden, | Hemenway. |

Geography:

| | |
|--|-----------|
| Special Methods in Geography, | McMurry. |
| Manual of Geography, | King. |
| Geographical Influences in American History, | Brigham. |
| How to Teach Geography, | Nichols. |
| Topics in Geography, | Parker. |
| New Basis of Geography, | Redway. |
| Teaching of Geography, | Geike. |
| Hide and Seek in Forest Land, | Chambers. |

COURSE OF STUDY.

FIRST AND SECOND GRADES.

The key note of nature study is to observe what can be seen to-day. Hence the work must correspond to the season of the year and to the available material. It is not essential that these lessons be given daily, and in the rural schools the work must be given to groups of three or four grades, a plan that would require variation in succeeding years to avoid repetition where it would produce monotony.

I. Natural Phenomena.

- Position of objects: Right, left, up, down, etc., north, south, east, west, location of school house on roads or streets, post-office, churches, etc.
- Time: From clock, days of week, day and night. Forenoon and afternoon, dawn, twilight, names and months.
- Seasons: Time of sunrise and sunset, length of days, signs of change. Preparation of plants and animals for winter or spring.
- Water: Forms. Cause of changes, heat. Circulation in soils, wells, springs, streams, rivers, circulation in air, value of water to plant life, water supply, water wheels, navigation, erosion.
- Earth: Soil, kinds, use for plant life, minerals, rocks, nature, occurrence and use. Begin the building of a working school cabinet.
- Winds: Direction, character, use, rainfall, storms, uses and effects.

Heat of Sun and Seasons: Show sun as source of heat, varying temperatures in seasons and zones, adjustment of plant and animal life to meet these variations. Children of the different zones. Effect on house, clothing and food.

Weather Observations: Day, date, direction of the wind, dew or frost, sky, moon.

II. Plant Life.

House plants: Garden plants, wild flowers, vegetables, fruits, nuts, grains. Make a study of ten common trees, learning to recognize them by bark, trunk, fruit, or leaves.

Vegetables as roots, stems, leaves, flowers or fruit. Seeds should be planted and observed. Experiments should show that water and air are necessary for germination. Development of buds. Development of bulbs. Dispersal of seeds by wind and animals.

III. Animal Life.

Common birds, their appearance, habit, nest, eggs, mode of flight, migration, calls.

Four-footed animals. Special study of cat or rabbit and contrast with study of the dog.

Observe larvae, cocoons, departure of birds and other animal evidence of approaching winter.

Insects. Grasshopper, cricket, potato beetle, cabbage butterfly, and polyphemus. Recognition and names, colors, homes, food, movements and calls.

In these years the teacher must avoid details and so-called thoroughness. It is important that the children get a rich and varied experience, that they may be given a many sided interest in their immediate world.

THIRD YEAR.

I. Natural Phenomena.

Weather work continued with observation of wind direction, clouds, frost, dew, fog, rain or snow. Get weather maps.

The sky. Shape, color, color of sunset and sunrise, rainbows, clouds, storms, sun, moon, planets, comets, meteors, etc.

Water. Circulation from the ground to the atmosphere, back to the ground, and from ocean back to ocean. Evaporation and condensation using experiments.

Earth. Simple land forms as hill, valley, slope, ridge, swamp, divide, plain, bank, etc., using modelling.

Position. Make plans or maps of school room, school grounds, town or township, of a field or farm. Study wall map for location in county and State and in the United States.

II. Plant Life.

Local fruits; tropical fruits. Study some simple flower. Its root, stem, leaves, parts of the flower. Perhaps 15 common wild flowers should be familiar to the children.

How seeds are protected while ripening. Parts of seed. Little plant in seed. Storage of food. Need of good soil shown by cultivation of seedlings in sawdust, sand and rich loam.

Trees. Arrangement and direction of branches, arrangement of leaves, position and protection of buds. Recognition of other varieties. Planting of trees with special celebration of Arbor Day.

III. Animal Life.

Types of animals. Horse, pig, sheep, wolf, and fox. Classification with reference to food. Tiger and lion, compare with cat. Snakes, turtles, minnows, frogs and toads. Development of tadpole. Special study of hen or duck.

Insects. Caterpillars, dragon fly, house fly and mosquito. Their usefulness or injury to man.

Suggestions:

The spirit of kindness to birds and animals should be developed in these studies. The tendency to destroy wild flowers should be checked. Popular superstitions should be counter-balanced as knowledge dispels the gloom of ignorance. Teachers will find many helpful suggestions in any of the books listed under nature study.

FOURTH GRADE.

I. Home Geography.

- A. Local industries.
 - 1. Agriculture.
 - 2. Lumbering.
 - 3. Mining.
 - 4. Manufacturing.
 - 5. Commerce.
 - 6. Show the relation between physical features and industry.
 - 7. Make a special study of the leading industry of the community.
- B. The village or town as a trade center.
- C. Social life and institutions.
- D. Local Government.
- E. Maps and map making should be continued so that the transition to globe study may be simple and easy.
- F. Study of the home county.

II. Globe study. The earth as a whole.

- A. Form and size.
- B. Motions of the earth.
 - 1. Rotation and its effects.
 - a. Location by means of parallels and meridians.
 - 2. Revolution and its effects.
- C. Distribution of land and water.
 - 1. Oceans and continents.
 - 2. Forms of land and water.
- D. Concrete and inductive studies of climatic conditions on the earth.

III. Regional Geography.

- A. North America.
 - Position.
 - Shape.
 - Islands.
 - Surface: Mountains. Plateaus.
 - Plains.
 - Drainage.
 - Heat and rainfall.
 - Life.
 - Political divisions.
- B. United States.
 - Size.
 - Coastline.
 - Surface features.
 - Drainage.
 - Cities.
 - Sections.
 - Journeys.

- C. Pennsylvania.
 - Boundaries.
 - Surface.
 - Soil.
 - Climate.
 - Productions.
 - Occupations.
 - Cities.
 - Rivers and Lakes.

Suggestions:

1. Some of the work here outlined may be done in the third grade if less time is given to nature study.
2. The study of regional geography in this grade should not be so intensive as in the more advanced grades.
3. In this study of the United States, several cities like New York, Minneapolis, Pittsburgh, Washington, New Orleans, and San Francisco may be taken as types. Several great railway systems can be learned from railroad maps. Imaginary journeys and characteristic products and occupations will add interest.
4. Maps of regions studied should be made by filling in the details on paper marked out by meridians and parallels.
5. It is not necessary to introduce a text-book in order to accomplish the work outlined. Wall maps and outlines will furnish the necessary skeleton for the body of material. The difficulty of reading a text intelligently almost prohibits its use.

FIFTH AND SIXTH GRADES.

In these grades the elementary book of a two-book series should be covered. Since, in the preceding grade, the work has centered about the pupils' State and nation, it will be advisable, after a month's review, to begin the study of Europe. Very often South America is taken next after North America, but since there are so many reasons for a greater interest in Europe the former plan is recommended.

ORDER OF TOPICS SUGGESTED.

- A. Europe.
- B. South America.
- C. Brief treatment of Asia, Africa and Australia.
- D. Second treatment of North America and the United States.

I. Position.

1. In hemispheres.
2. In zones.
3. In latitude and longitude.
4. In relation to other continents.

II. Size:

1. Absolute.
2. Relative.

III. Outline.

1. General shape.
2. Projections.
 - a. Peninsulas.
 - b. Capes.
 - c. Isthmuses.
3. Indentations.
 - a. Seas.
 - b. Gulfs.
 - c. Bays.
4. Bordering oceans.
5. Continental Islands.
6. Harbors, if notable.

IV. Surface.

1. Highlands.
 - a. Mountain systems.
 1. Location.
 2. Direction.
 3. Ranges.
 4. Heights.
 5. Peaks.
 6. Volcanoes.
 - b. Plateaus.
 1. Extent.
 2. Height.
 3. Fertile or arid.
2. Lowlands.
 - a. Plains.
 1. Location.
 2. Deserts.
 3. Forests.
 4. Prairies.
 - b. Notable or type valleys.

V. Drainage.

1. River systems.
 - a. Main streams.
 - b. Source.
 - c. Direction.
 - d. Length.
 - e. Branches.
 - f. Navigable.
2. Lakes.
 - a. Location, extent.
 - b. Salt or fresh.
 - c. Value.

VI. Climate.

1. Causes.
 - a. Latitude.
 - b. Elevation.
 - c. Mountains.
 - d. Winds.
 - e. Currents.
2. Peculiarities.
3. Healthfulness.
4. Rainfall, as to causes, amount and seasons.

VII. Life.

1. Vegetable.
2. Animal.
3. Human.
 - a. Races.
 - b. Population.
 - c. Occupation.
 - d. Education.
 - e. Religion.
 - f. Government.

VIII. Resources.

1. Fur-bearing animals.
2. Soil.
3. Minerals.
4. Forests.
5. Fisheries.
6. Conservation.

IX. Political Divisions.

1. In order of size.
2. Compare with countries in other continents.
3. Capital and largest city in each division.
4. Determine why cities exist where they do.

X. Commerce.

1. Routes, land and water.
2. Exports and imports.
3. Commercial cities.

XI. Comparisons.

1. In physical features, life, people and customs.

Suggestions:

1. It is very important that children be taught how to study. Geography is not a mere memory study. It should appeal to the imagination and understanding.

2. Observation lessons in the school district should be continued in these grades. Effects must be interpreted through their causes.

3. History and geography are essential to each other.

4. The teacher must make the recitation contribute to the desirable result of good English.

5. Map-drawing and interpretation are an important part of the work.

SEVENTH AND EIGHTH GRADES.

The pupils will have the more advanced text in these years, and the order of topics will vary with the author studied.

Suggested Order of Topics.

A. Size and shape of the earth.

B. Motions of the earth.

1. Determine location of North Pole.
2. Longitude and time. Standard time—International date line.
3. Seasons.

C. The Atmosphere.

1. Composition and pressure.
2. Precipitation—causes—forms—origin—evaporation.
3. Isotherms.
 - a. Causes of irregularity.
4. Winds.
5. Weather.

D. Oceans and ocean currents.

1. Tides.

E. Land forms due to erosion.

1. Rain—river—ocean.
2. Freezing and thawing.
3. Wind and sand dunes.

F. Glaciers and glaciation.

G. Lakes.

H. Coast line.

1. Islands—classes.
2. Coast forms of land.
 - a. Peninsula.
 - b. Isthmus.
 - c. Capes—points, spits, hooks promontory, etc
3. Shore forms of water.
 - a. Seas.
 - b. Gulfs.
 - c. Bays—fiords, estuaries.
 - d. Sounds.
 - e. Straits, channels.
4. Harbors.

I. Full treatment of the continents.

1. North America.
 - a. United States.
2. Europe.
3. Asia.
4. Africa.
5. Australia.
6. South America.

J. Special study of Pennsylvania and the home county.

1. Physical features, products, industries.
2. People of different sections.
3. Location of leading industries—mining—farming—lumbering—manufacturing.
4. Oil, gas, coke, tobacco, and buckwheat regions.
5. Counties.
6. Educational institutions.
7. Places of historical interest.
8. Great men and women—scholars—statesmen—poets.
9. Cities.
10. Commerce.
11. Government.
12. Animals.
13. Resources and their conservation.

Suggestions:

1. Schools should be provided with geographical readers for supplementary work, and the school library needs a fair share of geographical literature.

2. Current history often makes special demands for the geography of a particular region: e. g.: South Africa, the North Pole, Eastern Siberia and Japan.

3. If a daily paper is taken in the room, it is a good plan to form the Atlas habit for places named in the leading articles.

4. The relative importance of countries must determine the time devoted to them.

5. The relative latitude of places in the northern hemisphere is important.

6. When at all possible, have a magazine table for the upper grades in order to keep in touch with the leading geographical topics of the day, such as the Panama Canal, Alaska, Polar Expeditions, Irrigation, etc.

ELEMENTARY AGRICULTURE.

Seventh and Eighth Grades.

"At the head of all sciences and arts, at the head of civilization and progress, stands, not militarism, the science that kills, not commerce, the art that accumulates wealth, but agriculture, the mother of all industry, and the maintainer of human life."—Garfield.

"The service science has rendered in recent years in many lines has convinced thinking men that a man must know something about soils and fertilizers if he is to get the best crops the soil is capable of growing; that he must know something about breeding and selecting plants if he is to have the plants best suited to his soil; that he must know something about the diseases and insects that prey upon his plants if he is to make an effective fight against them; that he must know something of the composition of feeds and the principles of nutrition, if he is to secure the best results in the production of beef, pork, dairy products, or animal power, for his feeds; that he must know something of the laws of heredity before he can improve his herds to the best advantage; that he must know something about the proper care of the human body and the disease that prevents efficient work; that he must have the stimulant of high ideals."—W. R. Dodson.

The public schools can do much to create in the coming generation the desire to know more about the fundamental principles underlying agricultural practices. With the desire created, the attitude of the people a receptive one, the information can be readily imparted, and much is already at hand. Moreover, it is through the public schools that the masses of the people can be reached.

The purpose of the following outline in agriculture is to give help to the teacher. It is not to be expected that every school in the State will do all the work that is here outlined, while there are many schools that will carry out more exercises than are here given. The conditions are so different in the various parts of the state that a course in agriculture must be more or less flexible. In sections of the state where tobacco is grown, more emphasis should be placed upon this subject than in sections where it is not grown. The same applies to dairying. In the mining and other industrial sections much more attention should be given to vegetable gardening, and to the sanitation of the home, and the improvement of the school and home grounds. Right here is a wonderful opportunity for the schools in these districts.

The course as outlined provides for two years' work, and it is arranged so far as possible according to the sequence of seasons. It is designed for the seventh and eighth grades. In the rural schools these two grades should be combined in one class, saving the time of

the teacher, and giving more inspiration by making the class a little larger.

The class in agriculture should recite three times a week, Mondays, Wednesdays and Fridays being the best arrangement. Some of these periods should be taken up with the exercises and experiments, while at other times a portion of the noon hour should be utilized for this very pleasant work.

A good text-book should be in the hands of each pupil in the class, while the teacher should have several agricultural books on his desk. (See list of books at the end of outline). There should be several farm papers and magazines in the school for the use of the teacher and pupils. Some of the publishers of agricultural papers are glad to have one of the pupils in the school act as agent in securing subscriptions and will give the school a free copy. Work this up and you will be doing your community a service.

Do not confine yourself to the text-book. It is necessary for good work, yet there must be actual observations and operations to supplement it. It is not always best to follow the order of subjects as given in the texts. Perhaps this outline will help you in this respect.

Aim to get something definite accomplished each year. This subject gives an excellent opportunity to bring school and home together. By means of your study of corn and the corn club, increase the yield per acre in your locality. In your study of apples, use one or two new varieties that are suited to the region.

Get something definite done each year towards the improvement of the school house and yard. Get as many pupils as you can to do at least one thing each year to make their homes more attractive. Just think what this will accomplish in a very few years if carried out consistently by every teacher. Now do your part. You will never regret it, for it will pay you good returns.

Make the corn club a success from the start. Other clubs can be started later, but focus all your energy on the corn club for the boys and a sewing club for the girls. Other schools are doing it. Do not let your school fall behind.

Read over the outline, make a list of the bulletins mentioned in the references, and send for them all at the beginning of the year. Be sure to secure the set of "economic seeds." Save all of the work done by the class and have a school exhibit the time of the corn show or at some other suitable time.

Be sure to get pupils into the habit of making careful records of all observations and experiments made.

The Expert Assistant of Agricultural Education of the Department of Public Instruction at Harrisburg, Pa., will be glad to help you in any way possible.

Keep in touch with the School of Agriculture of the Pennsylvania State College, State College, Pa., and make use of every good agriculturist that comes your way, by having him give a talk in your school.

OUTLINE FOR 1912-1913.

THE NATURE OF PLANTS.

Root hairs, roots, stem, leaves, flower, fruit, cambium layer, how plants feed, sap current, propagation by buds, grafts, seeds, sprouts, bulbs, cuttings, plant food, air, moisture.

Suggestive Exercises:

1. For study of roots and root hairs germinate corn between two pieces of wet blotting paper (should be prepared at least a week in advance).

2. Study corn plant, wheat plant and oats plant, making drawing of each, including the roots.

3. Make a cross-section of a small branch or twig of a tree, showing bark, cambium layer, annular rings and heartwood.

References:

Any good botany text.

Agricultural texts in list of books at the end of this outline.

FARM CROPS.

Corn.

Study of plant, soil, cultivation, count the barren stalks and vacant hills, selection of seed in the field, judging corn, storage of seed corn, germination, planting, fertilizers, varieties, insect pests, fungous diseases and control of same.

Suggestive Exercises:

1. Take class into field and count barren stalks and empty hills. Estimate the loss per acre by getting the loss in a given area.

2. Take class into the field and select seed corn there.

3. Form a boys' corn club and have each of them select his own corn in the field at home, and store it properly at home. Have them keep a record of all that they do from the selection of seed in the fall until the contest the following year.

4. Have as many boys as will bring ten ears apiece from home and have a little corn show of your own. Have a public program, including essays on corn and invite the parents to be present. Have an exercise in judging corn.

5. The winner in each local corn club should exhibit his corn at the County Fair in a County Contest arranged by the County Superintendent, or at some other place arranged by him.

6. The winner in the county contest should send exhibit to the Pennsylvania State College to be entered in the State Contest.

7. Conduct germination test. Have each boy in the corn club test his own corn and select his own seed. (This exercise should be done in early spring).

References:

Agricultural texts, see appended list.

The production of good seed corn, No. 229.

School lessons in corn, No. 409.

Corn cultivation, No. 414.

Seed corn, No. 415.

} Farmers' Bulletins,
U. S. Department of
Agriculture, Washing-
ton, D. C.

School exercises with corn—Pennsylvania State College Bulletin.

Wheat.

Study of plant, kind of wheat, distribution, value as food, soil, culture, place in rotation, fertilizer, weeds, fungous diseases, insect enemies, time of seeding and time of ripening, harvesting, storing, marketing.

Suggestive Exercises:

1. Make a study of the plant and make a drawing of same.

2. Formulate problems for arithmetic class based upon the cost of production, marketing, yield, etc.

References:

Agricultural texts—See appended list.

Cereals in America—Hunt—See appended list.

Oats.

Study of plant, distribution, value, soil, -culture, rotation, fertilizers, weeds, fungous diseases, insect enemies, harvesting, marketing.

Suggestive Exercises:

Same as for Wheat.

References:

Same as for Wheat.

Rye, Barley, Buckwheat,

Same as for Wheat.

Grasses.

Same as for Wheat.

Legumes.

Study two or three of the most important, clover, alfalfa, vetch, study plant of each, including the roots, tubercles or nodules, bacteria, soil, culture, inoculation of new soil, fertilizers, lime, harvesting, plowing under, source of nitrogen.

Suggestive Exercises:

1. Take class into field and dig up roots of a legume. Point out the nodules.
2. Compare the different legumes growing in the fields.
3. Make drawings of each, showing the nodules on the roots.
4. Collect roots of the different legumes and put in bottles containing water or alcohol.

References:

Same as for Wheat.

Vegetable Garden.

Preparation of soil, fertilizers, time of planting various vegetables, care of each, cultivation, time of ripening, economy of space, late crops take place occupied by early crop, variety of vegetables, care required, cold frames and hot beds, flower garden.

Suggestive Exercises:

1. In industrial section where farming is not prominent, this topic should be well developed. Secure ground, if possible, for children's gardens, each pupil having plot eight feet by five feet or larger. Award prize for best garden. School should furnish seed.
2. Have pupils start garden at home. Offer prizes for best garden. Have pupils keep record of all vegetables harvested and their value.
3. Encourage the improvement of the home yard, both front yard and rear yard. Prizes should be awarded for the biggest improvement brought about in a yard in any one school.
4. School yard must be made neat and attractive as an example. Much of this work should be done by the pupils. An energetic teacher will be greatly surprised at the amount of good that can be accomplished in one or two years.

References:

Vegetable Gardening, R. L. Watts.

Principles of Vegetable Gardening, Bailey.

Catalogs of good seed firms.

The home vegetable garden, Farmers' Bulletin No. 255 U. S. Department of Agriculture, Washington, D. C.

Tobacco.

Study of plant, value and use, climate, types, planting, transplanting, cultivation, flower, suckers, harvesting, curing, sorting, grading.

Suggestive Exercises:

1.-Take class into tobacco field and see growing crop. Note soil, culture, etc. Ascertain what fertilizer was used. Compare this field with one belonging to another farmer, noting the above points.

References:

Agricultural texts—See appended list.

The culture of tobacco—Farmers' Bulletin No. 82.

Tobacco soils—Farmers' Bulletin No. 83.

Principles and practical methods of curing tobacco—Farmers' Bulletin No. 143.

Potatoes.

Soil, propagation, selection of seed, culture, standard varieties for local community, fertilizers, fungous diseases and insect enemies with methods of control.

References:

The Potato—Frazer.

Potato—Farmers' Bulletin Nos. 35, 149, 244, 365. Department of Agriculture, Washington, D. C.

SOILS.

Origin, kinds, size of particles, glacial, humus, moisture and air of the soil, purpose and effect of cultivation, moisture retaining capacities of the various soils, effect of humus and lime, soil capillarity, drainage, irrigation, tillage implements, use of roller, surface soil, subsoil.

Suggestive Exercises:

1. Collect samples of the various soils and place in jars or bottles. Make a study of them.

2. Carefully break the bottom out of four bottles. Invert them and tie cloth over the mouth of each. Fill them with sand, loam, clay, and leaf mould respectively. Under each place a glass. Into the top of each pour equal amounts of water (about half a glass).

Notice which soil loses the most water and which the most rapidly.

References:

Agricultural texts—See appended list.

Management of Soil to Conserve Moisture—Farmers' Bulletin No. 226.

Soils—S. W. Fletcher, see appended list.

Soils—Burkett.

The management of heavy clay soils—Farmers' Bulletin No. 202.

The Improvement of Sandy Soils—Farmers' Bulletin No. 204.

PLANT FOOD.

How plants feed, source of plant food, air, moisture, the elements, farm manures, care and handling of manure, commercial fertilizers, how to purchase, how to mix, when and how to add fertilizers to the soil, use of lime, legumes as source of nitrogen.

Suggestive Exercises:

1. Secure samples of fertilizers to show to the class.

Bring some fertilizer sacks to the class and have pupils read the labels on them. Explain same.

References:

Agricultural texts—See appended list.

Commercial fertilizer, No. 44.

Barnyard Manure, No. 192.

Home mixing of Fertilizers, Nos. 222-225.

} Farmers' Bulletins,
U. S. Department of
Agriculture, Washing-
ton, D. C.

CROP ROTATION.

Need of rotation, soil depletion, restoring fertility, advantages of rotation, systems of rotation, fungous diseases and insect pests in relation to rotation, use of legumes in rotation system.

Suggestive Exercises:

1. Point out the rotation in the fields near the school house.
2. Have pupils note the rotation of at least two fields on the home farm, and bring report of same to class. Have them report the rotations in use at home with the reasons for same.

References:

Agricultural texts—See appended list.

CO-OPERATION.

Principles of co-operation, what it means to the farmer, farmers' clubs, the Grange, duty to the community, to the school, to the church.

Suggestive Exercises:

1. Have pupils arrange a public program consisting largely of agricultural topics, this program to be given before the local farmers' club or Grange, or in co-operation with them.

ROADS.

Essentials of a good road, good foundation, rounded surface, ditches good drainage, use of split-log drag.

Suggestive Exercises:

1. Have one of the older boys make a split-log drag. Get the older boys to agree to drag the road for a quarter of a mile on either side of the school house during the entire session.

References:

| | |
|---|---|
| Fundamentals of Agriculture—Halligan. | |
| Good roads for farmers—Bulletin 95. | } Farmers' Bulletins, U. S. Department of Agriculture, Washing- ton, D. C. |
| Earth Roads—Bulletin 136. | |
| The use of split log-drag on earth roads— Bulletin 1331. | |

CHESTNUT BLIGHT.

History and distribution, economic importance, appearance, and effect on tree, method of infection, means of spreading, how controlled, The Chestnut Blight Commission in Pennsylvania.

Suggestive Exercises:

1. If there are chestnut trees in your locality, examine them for the chestnut bark disease. Let the school be the center of information in regard to the presence or spread of the disease in your locality.

References:

The control of the Chestnut Bark Disease—Farmers' Bulletin No. 467, U. S. Department of Agriculture, Washington, D. C. For recent information, write S. B. Detweiler, of the Chestnut Blight Commission, 1112 Morris Bldg., Philadelphia, Pa.

APPLES.

Chief varieties adapted to the locality, propagation by grafting and budding, top grafting, soil, drainage, exposure, distance to plant, pruning, cultivation, interplanting, intercropping, cover crops, picking, boxing and barrelling, storing, marketing, fungous diseases, insect enemies, spraying.

Suggestive Exercises:

1. With class visit an orchard. Point out correct and incorrect methods of pruning. Have members of class cut off a few limbs in correct manner. Look for scale insects and codling moth cocoons.

2. Have members of class top graft, first on models in class and then on some tree near the school house. Finally get each pupil to top graft some good variety on at least one of the trees at his home.

3. Send to some good nursery firm and buy enough seedlings so that each one in the class will have at least six. Secure good cions from a tree of a good variety growing in the neighborhood, or better yet, send to the nursery firm for cions of a variety that is adapted to the locality. Two or three varieties might be used instead of one. The purpose of this exercise is to teach the propagation of the apple and also to start some new trees in the locality. Have pupils root graft the trees carefully using the waxed string. (This can be purchased also). Then have each pupil take his tree home and plant it, being careful not to let the roots dry out. Keep a record of the number of these trees that grow.

4. Take class into an orchard where some farmer is spraying, or get the farmer to bring his spraying machine to the school house for a demonstration.

References:

Agricultural texts—See appended list.

The Apple and how to grow it.—Farmers' Bulletin No. 113, U. S. Department of Agriculture, Washington, D. C.

The Apple in Pennsylvania—The Pennsylvania State College Agricultural Experiment Station.

OTHER TREE FRUITS.

Same as for apples.

SMALL FRUITS.

Chief varieties only, method of propagation, soil preparation, culture, harvesting and marketing.

TREES.

Study common trees of the locality, leaves, bark, winter buds, seeds, wood structure, annular rings, windbreaks, care of farm woodlot, fungous growth on trees, proper methods of planting and pruning, value on school grounds and home grounds, uses.

Suggestive Exercises:

1. Take class out to the trees. Study them out of doors. Notice characteristic shape, method of branching, bark, leaves, and buds. The power of observation will be improved if pupils draw the various parts noted.
2. Make collection of leaves and cross-sections of wood and bark.
3. Plant at least on tree on the school grounds every Arbor Day. In addition to this do something every year to make the school grounds more attractive.

References:

- Agricultural texts—See appended list.
 Primer of Forestry, Part I.—Farmers' Bulletin No. 173, U. S. Dept. of Agriculture, Washington, D. C.
 Arbor Day Manual—Dept. of Public Instruction, Harrisburg, Pa.

SCHOOL AND FARM HOME.

Attractive building inside and outside, look up school law in regard to floor space, air space, lighting, heating and ventilating, lawn, shrubbery, flowers, trees, sanitary and inconspicuous outhouses concealed by shrubs and trees, playgrounds, home a place of beauty, lawn, shrubbery, flowers, no rubbish around, drainage, insect breeding places, sanitation.

Suggestive Exercises:

1. Each year do something. Make the school house and school yard more attractive. The pupils will gladly help. Be determined to make the place so attractive that the community will take especial pride in it. You can accomplish wonders in the space of two or three years, a little each year.
2. Each Arbor Day plant a few trees and shrubs. Have an Arbor Day program.
3. Try to have each pupil do something at home on each Arbor Day that will make the home grounds more attractive.

References:

- Agricultural texts—See appended list.
 Beautifying the Home Grounds—Farmers' Bulletin No. 185, U. S. Dept. of Agriculture, Washington, D. C.
 Planning and Adorning the Homestead—Iowa State College Agricultural Experiment Station, Ames, Iowa.
 Arbor Day Manual—Dept. of Public Instruction, Harrisburg, Pa.

BOYS' AND GIRLS' CLUBS—CONTESTS.

Corn Club for boys, Potato Club, Cooking and Sewing Club for girls. The underlying principle back of these clubs is to have the boys and girls do all the work themselves. In all experiments or contests complete records of what has been done should be part of the requirements.

Suggestive Exercises:

1. Hold fruit and vegetable show in the fall. Combine with this the work done by the girls.
2. Hold a corn show. This may be combined with the other show.
3. Do not give cash prizes. Local winners should compete in a county contest. Winners in county contest should compete in a State contest held at State College.
4. Have annual exhibit of cooking canning and sewing done by the girls. Combine this with the corn show of the boys and make a neighborhood affair of it.

References:

Boys' and Girls' Agricultural Clubs—Farmers' Bulletin No. 385,
U. S. Dept. of Agriculture.

OUTLINE FOR 1913-1914.

BIRDS.

A study of the common species of the locality, life history, habit, food, why beneficial to the farmer, learn to know a few every year, by song, sight, or flight.

Suggestive Exercises:

1. For a noon or afternoon walk go to some nearby trees or grove and closely observe some birds. Make it a point to learn to know a few birds well, and then increase the number.
2. Keep a bird chart, showing birds of the locality, time of migration of those that leave, and date first seen in spring.

References:

Nature Study—Hodge.

Some common birds—Farmers' Bulletin No. 54, U. S. Dept. of Agriculture.

THE HOUSE FLY AND MOSQUITOES.

Study of fly itself, life history, breeding places, as a carrier of disease, need of protection from them, how to get rid of them.

Study of the mosquito, life history, breeding places, carrier of disease, need of protection from them, how to get rid of them, Havana, Cuba, and the Panama Canal Zone as examples of what can be done.

Suggestive Exercises:

1. Study fly and mosquito under hand lens if possible.
2. Join the "fly-swatters" in the spring.

References:

Agricultural texts—See appended list.

The House Fly—Farmers' Bulletin.

How Insects affect Rural Health—Farmers' Bulletin No. 155,
U. S. Dept. of Agriculture, Washington, D. C.

BEES.

The bee a social insect, division of work, food, cross pollination, swarming, honey, beeswax, care of bees.

Suggestive Exercises:

1. Observe bees gathering honey and pollen.
2. Visit an apiary on a sunshiny day.

References:

How to keep bees—Comstock.

A B C and X Y Z of Bee Culture.

Beekeeping—Farmers' Bulletin No. 59, U. S. Dept of Agriculture.

Bees—Farmers' Bulletin No. 447, U. S. Dept. of Agriculture.

CORN.

Same as for 1912-1913. Two or three new varieties submitted by the State College or by the Department of Agriculture at Washington, D. C., might be tried out the coming spring.

WEEDS.

How to kill them, recognition of at least ten of the most common weeds in the locality.

Suggestive Exercises:

1. After studying weeds take a walk through the fields and point out at least ten common weeds. Trace them up in botany manual.
2. Make a collection of weed and crop seeds in small bottles properly labelled.
3. Secure a "School Set of Economic Seeds." These may be obtained at a nominal expense by writing to the Seed Laboratory, United States Dept. of Agriculture, Washington, D. C.

References:

Agricultural texts—See appended list.

Weeds and how to kill them—Farmers' Bulletin No. 28, U. S. Dept. of Agriculture.

SWINE.

Lard type, bacon type, characteristics of breeds of each type, profit in hog raising, butchering, packing houses, by-products.

Suggestive Exercises:

1. Make a list of the various breeds in the locality.
2. Compute the profit in raising a hog.
3. Have members of the class attend a hog butchering and write compositions describing what they saw.

References:

Agricultural texts—See appended list.

Types and breeds of farm animals—Plumb.

DAIRYING.

Chief breeds of dairy cows, characteristics, care of the cow, composition of milk, testing of milk, cream, the separator, butter, value of cleanliness, bacteria, care of milk, butter, cheese.

Suggestive Exercises:

1. Have pupils make a list of all cows in the locality and note how many of each breed.
2. Have each pupil figure out the cost of keeping one of the cows at home. Also estimate the revenue derived from that same cow, and see whether it pays to keep her.
3. Have each pupil describe how the milk and butter are handled at home. Emphasize the necessity of cleanliness.
4. If possible, get a Babcock tester and have pupils test the milk of the cows in the community.

References:

Agricultural texts—See appended list.

The care of milk and its use in the home—Farmers' Bulletin No. 413, U. S. Dept. of Agriculture, Washington, D. C.

The Babcock test and how to use it—The University of Wisconsin Agricultural Experiment Station, Madison, Wis.

CATTLE.

Types and breeds with chief characteristics of each, use of score card, names of various parts of the body, different cuts of meat, care, feed, housing.

1. Have pupils make a list of the various breeds in the neighborhood.
2. Have pupils figure out cost of keeping and feeding a steer, and the profit derived therefrom.

References:

Agricultural texts—See appended list.

Types and Breeds of Farm Animals—Plumb.

Essentials of Beef Production—Farmers' Bulletin No. 71, U. S. Dept. of Agriculture.

FEEDS AND FEEDING.

Purpose of feeding, classes of feeds, various feeds, natural feeds, stock food, balanced ration.

Suggestive Exercises:

1. Bring some ensilage to class and make a study of it.
2. Secure some samples of commercial feeds and explain analysis of same.

References:

Agricultural texts—See appended list.

Feeds and Feeding—Henry.

TUBERCULOSIS IN CATTLE.

Nature and history of disease, its importance, symptoms, spread of disease, the tuberculin test, suppression of the disease, sanitation.

Suggestive Exercises:

1. Have pupils examine cattle at home for symptoms of the disease. It is often present where it is not known.

References:

Tuberculosis—Farmers' Bulletin No. 473, U. S. Dept. of Agriculture.

SHEEP.

History, types and breeds with characteristics, care, feed, disease.

Suggestive Exercises:

Have the class make a list of the number and breeds of sheep in the locality.

References:

Agricultural texts—See appended list.

Types and Breeds of Farm Animals—Plumb.

HORSES.

Types of horses, breeds, names of various parts of body, care, how to tell age, feed, important diseases and their remedies, care of harness.

Suggestive Exercises:

1. Have pupils determine the age of the horses at home.
2. Have one of the pupils bring a horse to the school so that the various parts of the body may be located. Point out the strong points and the weak points. Determine the age of the horse.

References:

Agricultural texts—See appended list.
Types and Breeds of Farm Animals—Plumb.

POULTRY.

Different types, housing, feed, incubators, brooders, cost of keeping flock, revenue from same.

Suggestive Exercises:

1. Have pupils bring one each of the different breeds in the locality. Have slatted box ready for them. They can be studied and compared in this box. Show why one is a better meat breed than another, and why one is a general purpose breed.
2. Have pupils figure up the cost of keeping the home flock, and the revenue derived. Does every chicken in the flock pay for its keep?

References:

Agricultural texts—See appended list.
Bulletin 107, Pa. State College, School of Agriculture.
Poultry Raising on the Farm—Farmers' Bulletin No. 141, U. S. Dept. of Agriculture.

FARM MANAGEMENT.

Planning farms, proper location of various buildings, arrangement of fields, rotation of crops, housing and care of livestock, fences, influence of market, climate and soil, farm accounts, marketing, care of machinery, co-operation.

Suggestive Exercises:

1. Have each pupil make a plan of the home farm. Keep it for your next school exhibit.
2. Have pupils relate instances showing how it has paid their fathers to co-operate with their neighbors.

References:

Agricultural texts—See appended list.

FARM MACHINERY.

Care of tools and machinery, machines for various crops, parts of the machines, oiling, shelter.

Suggestive Exercises:

1. Secure catalogues of two or three good implement firms (free). Use them in class.

References:

Agricultural texts—See appended list.

FARM BOOK-KEEPING.

Value, simple methods for keeping records of expenditures and receipts, record of expense and income of a cow, poultry, etc.

Suggestive Exercises:

1. Have each pupil keep a record of cost of keeping one cow at home and the receipts derived from same. This exercise is the most valuable if the records of two cows are kept, one being one of the best cows in the herd and the other one of the poorest.
2. Estimate the cost of producing a crop from one of the fields, getting the facts from the owner of the field. Figure out the profit. Each pupil can take one of the crops on his own home farm.

References:

Agricultural texts—See appended list.

Correspondence Course, School of Agriculture, Pennsylvania State College.

CO-OPERATION.

Same as 1912-1913.

ROADS.

Same as 1912-1913.

SCHOOL AND FARM HOME.

Same as 1912-1913.

BOYS' AND GIRLS' CLUBS.

Same as 1912-1913.

TEXTS SUITABLE FOR ELEMENTARY SCHOOLS.

Beginnings in Agriculture—Mann—Macmillan Co.
 Agriculture for Beginners—Burkett, Steven & Hill—Ginn & Co.
 Productive Farming—K. C. Davis—Lippincott Co.
 Agriculture for Young Folks—Wilson & Wilson—Webb Publishing Co.
 First Principles of Agriculture—Goff and Mayne—American Book Co.
 An Introduction to Agriculture—Uphan—Appleton & Co.
 Agriculture for Common Schools—Fisher and Cotton—Chas. Scribner's Sons.
 Elements of Agriculture—Hatch and Haslewood—Row, Peterson & Co.

REFERENCE BOOKS.

Elements of Agriculture—Warren—Macmillan Co.
 Fundamentals of Agriculture—Halligan—D. C. Heath Co.
 Principles of Agriculture—Baily—MacMillan Co.
 Agriculture Through the Laboratory and School Garden—Jackson and Daugherty—Orange Judd Co.
 Cereals in America—Hunt—Orange Judd Co.
 Vegetable Gardening—R. L. Watts—Orange Judd Co.
 Principles of Vegetable Gardening—Baily—Macmillan Co.
 The Potato—Frazer—Orange Judd Co.
 Soils—S. W. Fletcher—Doubleday, Page & Co.
 Soils—Burkett—Orange Judd Co.
 Nature Study—Hodge—Ginn & Co.
 How to Keep Bees—Comstock—Doubleday, Page & Co.
 A B C and X Y Z of Bee Culture—A. I. Root Publishing Co.
 Types and Breeds of Farm Animals—Plumb—Ginn & Co.
 Feeds and Feeding—Henry—W. A. Henry.

ADDRESSES OF PUBLISHERS.

The Macmillan Co., New York, N. Y.
 Ginn & Co., New York.
 J. B. Lippincott Co., Philadelphia, Pa.
 Webb Publishing Co., St. Paul, Minn.
 American Book Co., New York.
 D. Appleton & Co., New York.
 Chas. Scribner's Sons, New York.
 Row, Peterson & Co., Chicago, Ill.
 D. C. Heath & Co., New York.
 Orange Judd Co., New York.
 Doubleday, Page & Co., New York.
 A. I. Root Publishing Co., Medina, Ohio.
 W. A. Henry, Madison, Wis.

PHYSIOLOGY AND HYGIENE.

Because of special legislation, this subject has received undue emphasis in the public schools, and it is very doubtful whether the results obtained are commensurate with the time and effort used. The tendency has been to make this subject distasteful to children because the study has been made formal and technical rather than practical. The value of any instruction must be determined by the reaction produced in the mind and life of the child.

The leaders in the temperance movement have agreed that two or three lessons a week for ten weeks of each of the first three or four years, and three or four lessons a week for ten weeks of each of the higher grades—together about 330 lessons in the whole study of physiology and hygiene, will cover the required and desired work in the subject.

Teachers have often devoted too much time to physiology and anatomy, have placed text books in the hands of the pupils too soon,

and then have taught the subject in such a perfunctory way as to render their work ineffective. Modern scientific research has forced certain hygienic problems upon public attention, and the school curriculum must be modified in order to meet the needs of the present century.

The demand for pure drugs, pure food, pure air, and filtered water, has focused the public mind upon the care of the body, and the work of the Commonwealth in attempting to eradicate tuberculosis and to direct and control municipal sanitation in the interest of conserving the public health, calls for a modification of our course of study.

Medical inspection in schools, whether conducted by the State or by the district, will direct the minds of the pupils again to the great value of a knowledge of the laws of health. The spirit of the times calls for the emphasis of practical hygiene in the oral instruction of the first four years. In most schools an elementary text is used in the fifth and sixth years, and a more advanced text, in the seventh and eighth years. The books used will doubtless determine the order of the topics. In ungraded schools, the first four grades can be grouped together for the oral instruction.

TOPICS SUGGESTED FOR FIRST AND SECOND GRADES.

1. Parts of the body—head, neck, trunk, arms, feet, etc. Use and care for each part, movement, adaptation to uses.
2. Care of the hair, eyes, teeth, nails and face. Emphasize cleanliness and neatness.
3. Joints—freedom of motion, hinge joint in elbow.
4. Simple lessons on bones and muscles. Uses of each. Correct habits of sitting, standing, walking, etc. Effect of tight clothing or shoes.
5. Exercise and sleep—need of rest, effect of exercise. The skin—use, care and cleanliness.
6. Food and drink. What foods give most nutrition. Self-control and temperance in eating. Cheap candy, chewing gum, unripe fruit, are unfit for food. Alcohol as contained in drinks—dangerous to health and happiness.
7. Watch children for physical defects and co-operate with parents by reporting defective sight or hearing, and mouth breathing.

THIRD AND FOURTH GRADES.

1. Review work of former years.
2. Care of teeth, ears, throat, finger-nails, hair, etc.
3. Prevention of colds by care of feet, head and body, by avoiding drafts.
4. The sick room and how to care for it.

5. Sleep, need, rules and habits.
6. Bathing and health.
7. Pure air and breathing.
 - a. How the air moves and how much we need.
 - b. Ventilation—drafts.
 - c. Poisons in the air.
 - d. Tobacco and the lungs.
8. Microbes and cleanliness. Dust, drinking cups.
9. Alcohol and extremes of weather, both hot and cold.
10. Eating.
11. Exercise.

FIFTH AND SIXTH GRADES.

A. Accidents.

1. First aid to injured.
2. How to carry the injured.
3. Bandages.
4. Sprains, cuts, bruises, burns, broken bones, etc.
5. Eye troubles.
6. Toothache and broken teeth.
7. Poisons including alcohol, treatment and antidotes.
8. Dog bites, sun strokes, freezing, drowning.
9. Poisonous plants, bites, or stings.
10. Electric shocks or burns, Fourth of July accidents.

B. Public Health and Sanitation.

1. Overcrowding in cities and its results.
2. Street cleaning, garbage collection and disposal.
3. Hospitals, parks, play grounds and public baths.
4. Expense of alcohol to city and State. Effect on business.
5. Water supply in towns and cities. Filtration.
6. Rivers, drinking water and sewage.
7. Epidemics of the plague, small-pox, typhoid, etc.
8. Vaccination.
9. War upon tuberculosis.
10. Food inspection, clean milk, pure meat, etc.
11. Alcohol and tobacco and their effect upon health.
12. Mosquitoes and malaria and yellow fever.
13. Rats and the plague.
14. House flies as spreaders of contagion.
15. Results of the work of the United States in Cuba, Panama, Porto Rico and the Philippines for public health.
16. The patent-medicine evil.

SEVENTH AND EIGHTH GRADES.

I. The Skeleton.

Use of bones, cartilage, tendons, ligaments.

Difference in composition of bones at different ages.

How broken bones heal. Use of splints. Why are bones hollow?

Why numerous?

II. Muscles.

Kinds and uses. Contraction. Voluntary and involuntary.

Exercise and muscle. Alcohol and tobacco and their effects on the heart.

III. The Skin.

Structure and layers. Use. Perspiration. Bathing. Cleanliness.

IV. Food.

Necessity. Temperature of body, its cause. Fat as a reserve.

What foods must contain. Use of cooking. Assimilation.

Time required for digestion. Alcohol as food.

V. Digestion.

Organs concerned and their functions. Use of the digestive juices. Appetite. Care of teeth. Diseases of digestive organs. Time to eat. Quantity of food necessary. Alcohol and tobacco with reference to digestion.

VI. Circulation.

Need of blood, its composition. Coagulation. Organs of circulation. Arterial and venous blood. Pulse. How to stop bleeding. Effect of alcohol on circulation.

VII. Respiration.

Organs. Object. Changes in lungs due to respiration.

Ventilation. Influence of tobacco and cigarettes in youth.

VIII. Nervous System.

Parts and organs. Pairs of sensory and motor nerves.

Sympathetic nervous system. Reflex action. Use of pain.

How repetition forms habit. Effect of alcohol on nerves, brain and will power.

IX. Special Senses.

Organs of each. Diseases. Care of eyes and ears. Use of smell and taste. Where is touch most sensitive.

X. Voice and Speech.

Organs and functions. Vocal cords. How voice is produced. Pitch and modulation. Speech. Effect of alcohol upon speech and upon these organs.

XI. Review.

HISTORY AND CIVICS.

During the past few years such pertinent questions as, "What is wrong with the teaching of history?" "What facts in history are of the most value?" "What topics in history should be eliminated?" together with other significant questions, have aroused educators and teachers of history to investigate the entire field. One important result has been the preparation of a somewhat detailed course of study which presents the facts of most worth in history for American children. This work was done by the Committee of Eight of the American Historical Association. Only an outline is reprinted. To teach the course successfully the entire report should be in the hands of every teacher in the elementary school.

BOOKS FOR TEACHERS.

The Study of History in the Elementary Schools.

Report of the American Historical Association by the Committee of Eight—Charles Scribner's Sons, 50 cents.

The Teaching of History and Civics—H. E. Bourne—Longmans, \$1.50.

Special Method in History—C. A. McMurry—Macmillan, 75 cents.

How to Study and Teaching How to Study—F. M. McMurry—Houghton, Mifflin Co., \$1.00.

Historical Sources in Schools—Macmillan, 50 cents.

COURSE IN HISTORY FOR ELEMENTARY SCHOOLS.*

FIRST GRADE.

A. Indian Life.

1. Historical background.
2. Stories.
3. Pictures.
4. Construction.

B. In Connection with Thanksgiving Day.

1. Historical background.
2. Stories.
3. Pictures.
4. Construction; paper cutting; clay modeling of animals.

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- C. In Connection with the celebration of Washington's Birthday.
 - 1. History of Washington's Birthday.
 - 2. Stories.
 - 3. Pictures.
 - 4. Construction; paper cutting.

- D. In Connection with Local Events.
 - 1. Historical background.
 - 2. Stories.
 - 3. Pictures.
 - 4. The flag.

SECOND GRADE.

- A. In Connection with Indian Life.
 - 1. Historical background—Indian characteristics.
 - 2. Stories from Hiawatha.
 - 3. Pictures.
 - 4. Construction.

- B. In Connection with Thanksgiving Day.
 - 2. Stories from the first school readers.
 - 3. Pictures, dress, manners and customs of Pilgrims.
 - 4. Construction, paper cuttings, clay modelling of animals.

- C. In Connection with Washington's Birthday.
 - 1. Historical background—Celebration of Washington's Birthday.
 - 2. Story of little George Washington—Story Hour.
 - 3. Pictures—Washington, Mt. Vernon.
 - 4. America (to be memorized).
 - 5. Story of the flag.

- D. In Connection with local Events.
 - Local History of the place.

- E. Memorial Day.
 - 1. Historical background—Observing Memorial Day.
 - 2. Stories.
 - 3. Pictures of Civil War heroes.
 - 4. The flag.

THIRD GRADE.

PICTURES OF HISTORICAL SCENES AND PERSONS IN DIFFERENT AGES.

A. Heroes of Other Times.

1. Joseph, Moses, David.
Ulysses.
Alexander.
2. William Tell, Roland.
3. Canute, Alfred, Robert Bruce, Joan of Arc.

B. Columbus.

1. Boyhood and early training.
2. Marco Polo's influence, stories of his travels.
3. Knowledge of the geography of the world.
4. Struggle to gain aid.

C. The Indians.

D. In Connection with Independence.

1. Historical background—July 4th.
2. Stories of the flag.
3. Star-Spangled Banner (to be memorized).

FOURTH GRADE.

HISTORICAL SCENES AND PERSONS IN AMERICAN HISTORY.

A. American Explorers.

1. (a) Columbus discovered America.
(b) Columbus Day should be celebrated October 12th.
2. Later stories of Columbus period.
3. Ponce de Leon, Cortez, De Soto, Magellan.
4. Cabot, Drake and Raleigh.
5. Champlain, Hudson.

B. Virginia Life.

1. John Smith, Pocohontas.
2. Industries, manners, customs of first settlers.
3. Relations with the Indians.
4. Black Beard, the Pirate.

C. New England Life.

1. Miles Standish, type of Pilgrim.
2. John Winthrop, type of Puritan.
3. John Eliot, type of Missionary.
4. King Philip, type of Indian.
5. Industries, manners and customs of the New England Settlers.

D. Dutch Quaker and other Settlers.

1. Peter Stuyvesant.
2. Manners, customs, industries of New Netherlands.
3. William Penn.
4. Manners, customs and industries of the Quakers.
5. James Oglethorpe.
6. Manners, customs and industries of Southern planters.

E. Local Pioneers.

1. Local or State pioneers.
2. Relations with Indians.
3. Striking characteristics.

F. New France.

1. La Salle.
2. Life of the trapper, the Jesuit Missionary, and the soldier of New France.

G. George Washington.

H. Benjamin Franklin.

FIFTH GRADE.

HISTORICAL SCENES AND PERSONAGES IN AMERICAN HISTORY.

A. Narrative Mainly Biographical. Before the Revolution.

1. Patrick Henry.
2. Samuel Adams.
3. Benjamin Franklin.

B. The Revolution.

1. George Washington.
2. Declaration of Independence.
3. Stories of the army.
4. Benjamin Franklin. (With special reference to the Revolution.

C. Other Revolutionary Heroes.

1. Nathan Hale.
2. Nathaniel Greene.
3. Morgan.
4. Marion.
5. Paul Jones.
6. La Fayette.

D. The Great West.

1. Daniel Boone; the story of his life.
2. Boonesboro, manners and customs in early Kentucky.
3. Story of life on the Mississippi.
4. John Sevier, story of early life in Tennessee

E. The North-West.

1. George Rogers Clark; winning the North-West.
2. Life in Kaskaskia, Vincennes.

F. The New Republic.

1. Washington; his inauguration.
2. Locating the Capital.
3. Eli Whitney, life on a cotton plantation.

G. Increasing the Size of the New Republic.

1. Thomas Jefferson, his inventions, how he secured rice for Southern plantations.
2. Jefferson as president; purchase of Louisiana, description of New Orleans, a walled town.
3. Lewis and Clark, story of expedition and discoveries.
4. Andrew Jackson, Indian fighter.

H. Internal Improvements.

1. The first steamboat—life of Fulton.
2. The first railroad—story of the first train.
3. The Erie Canal, its importance, natural roads.
4. The telegraph—life of Morse.

I. The Republic Grows Larger.

1. Sam Houston.
2. David Crockett, story of the Alamo.
3. Fremont, Kit Carson.
4. Spanish missions in the South-west.
5. Discovery of gold in California.

J. Three Great Statesmen.

1. Webster, Clay, Calhoun.
2. Early life and work.

K. The Civil War.

1. Abraham Lincoln.
2. Robert E. Lee.
3. Anecdotes of other Northern and Southern Generals.

L. Great Industries.

1. Cotton: the cotton field, the factory.
2. Wheat: the wheat field, grain elevators.
3. Cattle: cattle grazing, stockyards.
4. Coal and iron, the mines, the furnaces, the products.

SIXTH GRADE.

INTRODUCTORY EXERCISES.

(a) Where Americans Came From.

- (1) Newcomers.
- (2) How emigrants come.
- (3) Earlier Americans as emigrants.

(b) When America was Unknown.

- (1) How the world looked when the Christian era began.

(c) What Americans Started With: A Study of Some Ancient Inventions.

- (1) Some recent inventions.
- (2) Inventions made before Columbus discovered America.
- (3) Still older inventions.

GEOGRAPHIC CONDITIONS: MAP STUDY OF GREECE AND HER NEIGHBORS.

A. The Greeks and What We Have Learned From Them.

1. The Greeks, why we remember them.
Famous stories already learned through supplementary reading.
Famous Greek cities which still exist.
Unforgotten memories of Greek courage.
2. The Greeks as Builders and Artists.
Athens, the most splendid of ancient Greek cities.
3. Greek Boys and Greek Men.
The Greek boy, training and amusements, at Athens, at Sparta, the Olympic games.
Greek men, their love of ruling themselves.
The story of Socrates, one of the greatest of the Greeks.
4. Men Who Carried Greek Ways of Living to other Lands.
Sailors, traders and colonists.

GEOGRAPHICAL CONDITIONS: ROME'S RELATION TO GREECE;
HER ENVIRONMENT.

B. The Romans, What They Learned from the Greeks, and What
They have Taught Us.

1. How the Romans began.
Stories about the Romans already learned.
Early Rome and her neighbors.
2. How Rome Conquered the Lands About the Mediterranean.
3. The Romans in the West.
Their greatest general, Julius Caesar.
Caesar and the Germans.
Caesar and the Britons.
4. Rome Capital of an Empire.
Caesar's successors called Emperors.
How Rome looked.
Roman books.
5. Rome and Christianity.
The early Christians in the Empire.
The Empire conquered by Christianity.

GEOGRAPHICAL CONDITIONS THAT SHAPED TEUTONIC LIFE.

C. The Heirs of the Romans.

1. The Germans.
Names of German tribes which appear in modern names—
Angles, Saxons, Franks.
Famous stories.
2. Alfred and the English.
The English of Alfred's day.
The Vikings.
Alfred and the Danes.
Alfred as King.
3. How the English Began to Win Their Liberties.
A wicked King, John Lackland.
The Great Charter.
The Charters strengthened.
4. How People Lived in England and in Europe During the
Middle Ages.
The towns.
The village life.
The nobles.
5. The Church in the Middle Ages.
Cathedrals.
A monastery.

STUDY OF GEOGRAPHICAL ROUTES AND TRADES, INTERESTS
BETWEEN EAST AND WEST.

D. Pilgrimages, Crusades, Commerce.

1. Pilgrimages.
Mediaeval pilgrims.
2. The Crusades.
The First Crusade.
Richard the Lion-hearted.
3. Results of the Crusades.
Venice.
Other trading cities.
What the Europeans learned in the East or through contact
with the Moors in Spain.

E. The Discovery of the Western World.

1. Beginnings of Discovery.
Voyages of the Northmen.
Marco Polo.
Portuguese voyages.
2. Columbus.
His early life.
The first voyage.
Later voyages.
3. The Successors of Columbus.
How America came to be named for Amerigo Vespucci.
rather than for Columbus.
John Cabot and his discoveries.
The Portuguese Vasco da Gama.
4. Other Successors of Columbus.
How Balboa found the South Sea. Map.
The story of Magellan's voyage. Map.
Cartier.
5. Beginnings of Conquest.
In Mexico; story of Cortez briefly told. Route.
Story of De Soto. Map: route.

F. European Rivalries Which Influenced Conquest and Colonization.

1. England in the Days of Elizabeth.
Stories of "Good Queen Bess."
English seamen and the King of the Spaniards.
2. France, Another Rival of Spain.
The story of Bayard.
The French and the Spaniards in a conflict in America.

3. The King of Spain Attacked by His Subjects, the Dutch.
The Dutch.
Their quarrel with the King of Spain.
The revolt of the Dutch.
4. Englishmen Join in the Fight Against Spain.
English and Dutch; story of Sir Pilip Sidney.
War between England and Spain.
Story of the Great Armada in its ruin.
5. English Voyages Westward.
Story of Gilbert.
Story of Raleigh's first colony. Map.
Raleigh's second attempt, why it failed, and what he had accomplished. Map.

SEVENTH GRADE.

A. The First Settlement of the Three Rivals of Spain.

1. North America. Geographical Conditions.
2. Getting to the Colonies.
Ships of the time.
What a colonizing company, like the English, London, or Plymouth Companies, was.
3. The First English Settlement.
Land controlled by the London Company.
Occupations of the early settlers.

B. Exiles for Political or Religious Causes.

1. The First Exiles for Conscience' Sake, The Pilgrims.
The voyage to New England.
Early years of Plymouth colony.
2. The Puritans Plan to Emigrate.
King Charles and his Parliament, the political reason, a quarrel about taxes.
Who were the Puritans?
3. The Great Emigration.
Settlement of Boston.
How the Puritans governed themselves.
4. Other Exiles.
Roger Williams.
5. Puritan and Cavalier in England.
John Hampden and the Ship Money.
War between King and Parliament.
Triumph of Parliament.
6. New Exiles from England.
William Penn.
Hugenot exiles.

C. Colonial Rivalries.

1. Early Conflicts.
The West Indies.
Peter Stuyvesant.
2. The French in the Mississippi Valley.
Story of Marquette.
La Salle's journeys and conflicts.
3. The Arrival of the Dutch.
Henry Hudson.
Manhattan Island.
The attempt to attract settlers to the Hudson River Valley,
the patroons.
4. The First French Settlements.
Settlements at Quebec and Montreal.
Champlain.

D. Growth of the English Colonies.

The New England Confederacy, King Philip's War. Virginia, troubles with the Indians, discontent with the governors, Bacon's Rebellion.
Expansion of the English colonies Southward and Westward.

E. Struggle for Colonial Empire Between England and France.

1. The Dutch and the English Against France.
Revolution of 1688 in England.
2. The Colonies at War.
Border warfare in William's and Anne's reigns, part of wars with Europe.
3. Beginning of the Final Struggle.
Dupleix and Clive in India.
4. Causes of Conflict in America.
The Braddock Expedition.
5. Close of the War.
The French and Indian War was in Europe the Seven Years' War.
Terms of peace for America, incidentally for India.
The new colonial empire of England.

F. From Colonies to Commonwealth.

1. The Country Across the Alleghanies.
The policy of the English government in regard to these lands.
2. Social Life, Industry and Trade in the Colonies.
Occupations.
Social conditions.

3. Government in the Colonies.
The Crown and the People.
Kinds of colonial governments.
4. Grievances of the Colonies, Causes of the Revolution.
Before the Stamp Act.
Resistance to new taxes.
Beginning of violent resistance.
5. Opening of the Revolutionary War.
The first fighting.
Independence.
Organization of the Colonies into States.
6. Period of Difficulty.
Struggle about New York.
Burgoyne's expedition.
Loss of Philadelphia.
7. Struggle West of the Alleghanies.
The North-west.
Story of George Rodgers Clark and the results of his work.
8. The French Alliance.
Reasons for it.
The first consequences.
Increasing difficulties of the English.
9. War in the South, a new period of difficulty.
Losses in South.
Treason of Arnold.
Discovery in the South.
10. Close of the War.
Yorktown campaign.
Why the war went on.
Peace.
11. England After the Revolution.
Attitude toward the new Republic.
English colonies.

EIGHTH GRADE.

A. Organization of the United States.

1. The New Republic.
Weakness of the government under the Articles of Confederation.
Distress in the Republic.
The North-west.
2. The Constitution.
The Convention of 1787.
Powers granted to the National Government.
Powers taken from the States.

3. The New Government.
 - Adoption of the Constitution.
 - Organization of the new government.
 - Washington's administration.

B. The New Republic and Revolution in Europe.

1. Revolution in France.
 - Grievances of the French People.
 - The King conquered by his people.
 - Overthrow of the King.
2. European Wars and American Interests.
 - How the war affected America.
 - Neutral commerce.
 - Troubles during Adams' administration.
3. Advent of Jefferson.
 - The election of 1800 and its consequences.
 - Purchase of Louisiana.
 - Opening the new territory.
4. New Wars in Europe and Their Consequences to America.
 - Story of Napoleon Bonaparte.
 - His great war with England.
 - How America was affected.
5. The War of 1812.
 - Its causes.
 - The struggle about Lake Erie.
 - Victories of the "Constitution."
6. Conclusion of the War.
 - The war unpopular in New England.
 - Peace of Ghent.
 - End of the great European wars.

C. Industrial and Social Development.

1. The Industrial Revolution in England and America.
 - Industrial changes in England.
 - Cotton.
 - Factories.
 - Steamboats.
2. Western Emigration.
 - The new homes.
 - The settlers.
 - Life of the settler.
3. Social Conditions about 1820.
 - Free and slave labor.
 - Missouri compromise.

D. New Neighbors and New Problems.

1. Revolt of the Spanish Colonies.
The revolt.
The new republics and the United States.
2. Politics from 1824 to 1832.
The election of 1824.
Internal improvements and the tariff.
"Reign" of Jackson.
3. Three Great Questions.
New method of electing a president.
Banking troubles.
The anti-slavery movement.
4. Our Neighbors.
Texas.
The Oregon question.
Canada.
5. War with Mexico.
Annexation of Texas.
The war.
Results.

E. Expansion makes the Slavery Question Dominant.

1. California, some of the consequences of annexation.
Discovery of gold.
The slavery question again.
Failure of the Compromise.
2. The North Re-enforced, industrial and social development.
New causes of emigration from Europe.
Development of transportation.
The New West.
3. Slavery in the West again.
The Kansas-Nebraska question.
A new party.
The slavery question becomes acute.

F. The Crisis of the Republic.

1. The crisis of the Union.
The election of 1860.
The Secession Movement.
2. Civil War.
Relative power of the Southern Confederacy and of the
Federal Government.
Fort Sumter.

3. Varying Fortunes of Conflict.
 - Cutting off the Confederacy from the outside world.
 - General plan of the struggle on land.
 - The Emancipation Proclamation as a war measure.
4. Turning of the Tide.
 - Crisis of the struggle in the East.
 - Crisis on the Mississippi, struggle about Vicksburg.
 - On the threshold of the cotton states.
5. Overthrow of the Confederacy.
 - The Virginia campaign of 1864, emphasizing the tenacious defense by Lee and the persistent attacks of Grant.
 - Sherman's invasion of the cotton states.
 - Appomattox.
6. The Problems of Restoration of Peace.
 - Reconstruction.
 - Methods.
 - Troubles in the South.

G. The New Union and the Larger Europe.

1. The New Union.
 - Opening of the Far West.
 - Financial crisis.
 - Close of Reconstruction Policies.
2. Development of Great Britain.
 - Growth of self-government.
 - The British Empire.
3. Great Changes in Germany, Italy and France.
4. The Larger Europe.
 - European interests in Asia.
5. The Problems of the Republic.
 - From industrial growth.
 - From commercial rivalry of Europe.
 - From the war with Spain.
 - Education.

SOURCE BOOKS IN HISTORY FOR TEACHERS.

| | |
|------------------|---|
| Abbott, | Pericles. |
| Adams, | Civilization During the Middle Ages. |
| Bury, | Students' Roman Empire. |
| Brown, | The Venetian Republic. |
| Bourne, | Spain in America. |
| Church, | The Three Greek Children. |
| Church, | Trial and Death of Socrates. |
| Crawford, | Araroma. |
| Cheney, | Industrial and Social History of England. |
| Creighton, | Age of Elizabeth. |
| Fowler, | Julius Caesar. |
| Freeman, | Old English History. |
| Guizot, | History of France. |
| Green, | Short History of the English People. |
| Gibbins, | History of Commerce in Europe. |

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| Halm, | History of Greece. |
| Hughes, | Alfred the Great. |
| Hill, | Liberty Documents. |
| Henderson, | History of Germany. |
| Hume, | Phillip the Second. |
| Harrison, | William the Silent. |
| Jusserand, | English Wayfaring in the Middle Ages. |
| Keary, | Vikings in the Western Christendom. |
| Mahaffey, | Social Life in Greece. |
| Mahaffey, | Alexandria's Empire. |
| Macy, | The English Constitution. |
| Monto & Seller, | Mediaeval Civilization. |
| Ramsay, | Foundations of England. |
| Robinson, | History of Western Europe. |
| Parkman, | Pioneers in New France. |
| Prescott, | The Conquest of Peru. |
| Prescott, | The Conquest of Mexico. |
| Sturgis, | European Architecture. |
| Wheeler, | Alexandria the Great. |

LIST OF HISTORY BOOKS FOR CHILDREN.

Grades 1 and 2.

| | |
|-----------------------|---|
| Bailey & Lewis, | For the Children's Hour. |
| Burton, | The Story of the Indians of New England. |
| Drake, | The Making of New England. |
| Eggleston, | A First Book in American History. |
| Hart, | Romance of the Civil War. |
| | Camps and Firesides of the Revolution. |
| | Colonial Children. |
| Husted, | Story of Indian Children. |
| Husted, | Story of Indian Chieftans. |
| Lane & Hill, | American History and Literature |
| Page, | Two Little Confederates. |
| Page, | Among the Camp. |
| Pratt, | American Stories for American Children. |
| | Colonial Children. |
| | Legends of Red Children. |
| Poulsson, | The Children's World. |
| Tiffany, | Pilgrims and Puritans. |
| Tanner, | Legends of Red Men. |
| Scribner, | Indian Stories Retold from St. Nicholas. |
| | Civil War Stories Retold from St. Nicholas. |

Grade 3.

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|------------------------|---|
| Haaran & Poland, | Famous Men of Greece. |
| | Famous Men of Rome. |
| | Famous Men of the Middle Ages. |
| Hart, | Colonial Children. |
| | Camps and Firesides of the Revolution. |
| Eggleston, | First Book of American History. |
| Johnnot, | Ten Great Events in History. |
| Lane & Hill, | American History in Literature. |
| Pratt, | American History for American Children. |
| Tiffany, | From Colony to Commonwealth. |
| Tappan, | Bible Stories. |
| Clark, | Story of Ulysses. |
| Roland, | William Tell. |

SOURCE BOOKS IN HISTORY FOR CHILDREN.

Grades 4, 5 and 6.

| | |
|----------------------|-----------------------------------|
| Andrews, | Ten Boys. |
| Arnold, | Stories of Ancient People. |
| Baldwin, | Old Greek Stories. |
| Best, | Stories of Plato. |
| Bates & Coman, | English History Told in Poetry. |
| Bourne, | Introductory American History. |
| Brooks, | Historic Boys. |
| Church, | Roman Life in the Days of Cicero. |

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|------------------------|------------------------------------|
| | Stories of the Old World. |
| | The Story of the Odyssey. |
| | The Story of the Iliad. |
| | Stories from English History. |
| | The Crusaders. |
| Clark, | Story of Ulysses. |
| | The Story of Aeneas. |
| | The Story of Caesar. |
| Haaran & Poland, | Famous Men of Greece. |
| | Famous Men of Rome. |
| | Famous Men of Middle Ages. |
| Hart, | Source Readers, Volume I. |
| Guerber, | A Story of the Greeks. |
| Guerber, | A Story of the Romans. |
| Green, | King Arthur and His Court. |
| Gilliat, | God Save King Alfred. |
| Griffis, | Brave Little Holland. |
| Child, | Beowulf. |
| Foote & Skinner, | Explorers and Founders of America. |
| Kingsley, | Heroes. |
| Blaisdell, | Stories from English History. |
| Kilman, | Stories from Chaucer. |
| Kilman, | The Boy's Froissart. |
| Plutarch, | Lives. |
| Powell, | Old Stories from British History. |
| Seymour, | Chaucer's Stories. |
| Richardson, | Our Country. |
| Tappan, | Our Country's Story. |
| Tappan, | England Story. |
| Warren, | Story of English History. |
| Young, | A Book of Golden Deeds. |

DRAWING.

Until our school system provides a more thorough course in drawing, a special teacher or supervisor for the subject will be required. Smaller towns situated near each other should combine to hire a teacher in drawing. Sometimes three or four small towns can be well supervised by a good teacher.

Arrangements can be made through monthly teachers' meetings to have the drawing supervisor meet the teachers of the rural districts and instruct them in the work for the following month. The teachers should be expected to work out in this meeting the lessons which they will present to their pupils. In this way, they will meet the same difficulties which the pupils meet and the supervisor can help to solve them.

The work in drawing will make an especially strong appeal to the rural teacher, for all about her the fields and woods are teeming with materials to use. The country child should be taught to enjoy the beauty of the things about him. He is surrounded by beauty fresh from the hand of the Creator, while the city boy sees the creations of man.

Nature does not reveal herself to the careless observer, but to him who studies her sky and trees, fruits and flowers, "she speaks a various language."

Grade teachers who are especially fond of the work should be encouraged to specialize in drawing, since a good teacher usually makes a good supervisor. All teachers should feel the need of some

training along this line. The tendency towards industrial education puts new demands upon the teacher, and no subject can be taught well without special preparation.

Summer schools offer courses in these subjects, and the wide-awake teacher will avail herself of the opportunities to prepare for this work.

MATERIALS.

Books should be used only as helps for the teachers. Teachers should be supplied with as many helps as possible. It is a good plan to furnish the grade teacher with two or three copies of her own grade book in order that she may cut out and mount the illustrations for use as good examples. She should also have the book for the grade above and also the grade below hers, in order to know the sequence of the work.

The "Progressive Drawing Books" and the "Manual Arts Drawing Books," by the Prang Co., New York, and the "Applied Arts Drawing Books," of Atkinson, Mentzer & Co., New York, will be found very helpful.

Gray and cream manilla paper are preferable to white for general use in the public schools. White may be used for pencil work if preferred. Sheets 9 in. x 12 in. should be used for all grades. This sheet can be carefully torn lengthwise or crosswise when a smaller sheet is desired. Children should learn to tear paper carefully.

Charcoal is an inexpensive material which may be used in all grades. It is good for large mass drawings in the primary grades and for smooth tone studies in the higher grades.

Colored crayons may be used in any grade but are especially adapted to the lower grade work. If supplied for the lower grades, they might be borrowed for use in the higher grades.

If a special teacher of drawing is provided, water color can be begun in the intermediate grades. The three color box with black added is a good box for grade work. Work in brush and ink or black water color can precede the color lessons until the handling of the brush is acquired.

Soft pencils should be used in the higher grades beginning with the fifth or sixth grades.

Tinted papers will be found very pleasing for construction work.

Mounting cards for exhibition should be of a soft gray, tan, or ivy green color.

It seems a good plan to have pupils construct large envelopes of manila paper in which to keep their drawings. The older pupils might make envelopes for the lower grades, since it is a good constructive problem. If the drawings are kept in order as to lessons, it

will be easy to exhibit the work by lessons, by passing out envelopes and having each pupil hold up his sheets, one by one.

Each sheet should have the name of the child, his grade, and the number of the sheet written plainly just above the center on the back of the sheet.

It is a good plan to have a good sized poster board of olive green or tan burlap on which several of the better drawings of the last lesson should always appear. This is a stimulus to good work.

THE LESSON.

All nature subjects should be large, and a sufficient number for every pupil to see one plainly is necessary. Boards should be placed across the aisles resting on opposite desks—two in every second aisle. Ordinarily, six boards are sufficient. On these boards can be placed easels made of large cardboard with the bottom turned back on which books can be placed to make it stand. The nature subject can be pinned to this easel. Vegetables or still life can be arranged on the boards.

Large fresh specimens should always be supplied. All pupils in the room should draw. A child should have a second sheet of paper only by special permission from the teacher. He should be made to feel that his first sheet is to be his best work. Practice lessons are apt to be carelessly done and the vitality of the lesson is lost. Pupils should never be allowed to draw on both sides of the paper.

In presenting any lesson in drawing it is necessary to have some conversation about the subject to be drawn. If nature subjects—the name, growth, size, and placing, etc., are important. Help the child to look for these carefully before he begins to draw. In still life there is the grouping, the teaching of ellipses, the placing of one object back of another, etc. Do not be afraid to teach the child in the drawing class. You will not check his originality and you can arouse his interest. Help to see things as he draws. At the close of the lesson the drawings may be put up and criticisms made by the class. Helpful criticism rather than fault-finding is desired.

Color boxes should be cleaned after each lesson by removing superfluous color from the cakes with a moist brush. Every lesson should be one in neatness and accuracy. Each pupil should have a cloth when painting on which to clean his brush. The brush should be drawn across it lightly, otherwise the bristles will pull out. At the end of the lesson the brush should be dipped into the water several times and then shaken to bring it to a point. Brushes when used for lines should be held vertically—for washes obliquely.

In mounting for exhibitions the mounts should not be too crowded. It is hard to see quality on account of quantity, sometimes. Four to

six drawings are usually enough for the average sized mount. Drawings of the same kind should be kept together, viz., nature subjects, still life objects, etc.

COURSE OF STUDY.

GRADES ONE, TWO AND THREE.

The lessons in these grades should be closely related to other subjects. The stories and poems given under the head of English should be illustrated. Good spelling lessons can frequently be taken from the drawing lesson, and the language lesson can be very closely related. If rightly taught, drawing will vitalize every other subject. Primary pupils should draw or paint in mass, since they are not able to produce a line with feeling. Their lines are apt to be hard and mechanical. Pencil outline should be reserved for the higher grades. The length of periods in the lower grades should be from fifteen to twenty-five minutes and it is desirable that drawing be taught every day in these grades.

The work in drawing in the lower grades should be correlated with the industrial work. Indeed, it is so closely related that it is hard to separate it. The teacher should keep this in mind and have all designs made to use on some article, no matter how simple, which is constructed by the child.

September—October—November.

Teach terms: top, bottom, centre, right, left, side, back, front, corner.
 Creasing and tearing of paper.
 Teach the six standard colors.
 Combinations of green, orange, and violet.
 Paint a color scale.
 Paint a rainbow.
 Paint fall flowers and berries in color mass.
 Paint a simple fall landscape.
 Illustrate fall games or stories, told in the language lessons.
 Paint vegetables in mass with crayon or charcoal.
 Paint the pumpkin for Thanksgiving. Other Thanksgiving subjects, such as the turkey, Jack-o-lantern, etc.
 Use these in decoration of a Thanksgiving booklet.
 Teach the placing of a unit or border.
 Illustrate Thanksgiving subjects:
 (a) Catching the turkey.
 (b) Thanksgiving Dinner.
 (c) Pilgrims.

December—January—February.

Make and decorate Japanese lanterns.
 Paint lanterns.
 Paint the Christmas Tree.
 Paint the Christmas stocking.
 Paint a reindeer.
 Make simple arrangements for borders by repetition of units.
 Apply these to Christmas cards, calendars, booklets, candy boxes, etc.
 Paint winter landscape.
 Illustrate memory selections from the English course.

Illustrate Christmas subjects.

- (a) Hanging the stockings.
- (b) Bringing the Christmas tree.
- (c) Santa Claus coming.
- (d) Christmas morning.

Paint toys in mass with crayons, engines, carts, cars, horns, drums, sled, ship, large animal toys, etc.

Paint articles of clothing, caps, hats, mittens, rubbers, rubber boots, shoes, hand bags.

Winter landscape, using white chalk for snow

Illustrate games:

What I do with my toys.

Winter sports: Coasting, skating, making a snow man, making a snow fort.

Make and decorate valentines.

Make and decorate booklets for Lincoln's and Washington's birthday. These can be made for stories or poems used in the language or reading lessons.

Simple lettering should be a part of the decoration of a booklet cover.

Covers may be made for booklets of trees, flowers or landscapes.

Study Indian design.

If possible draw from a cat or dog.

Give exercises in judging lengths of lines by having the pupils draw free-hand lines of a certain length and afterward measuring to test them.

March—April—May.

Easter subjects.

Paint Easter eggs.

Paint rabbit from the animal if possible.

Paint little chicks.

Illustrate Easter subjects.

Illustrate Easter poems and stories.

Paint spring landscape.

Illustrate what the wind does.

Paint an umbrella on a rainy day. Child may pose with an open umbrella.

Illustrate spring games and occupations.

- (a) Playing marbles.
- (b) Base ball.
- (c) Rolling hoops.
- (d) Jumping rope.
- (e) Making garden
- (f) Planting flowers.

Illustrate:

- (a) The circus.
- (b) Subjects suggested by spring poems.

Paint a watering can.

Paint budded twigs:

- (a) Pussy willow.
- (b) Horse chestnut.
- (c) Lilac.

Paint spring flowers.

Paint robins and blue-birds.

A good effect can be gotten by painting in white chalk, and then painting other colors into it.

GRADES FOUR, FIVE AND SIX.

The length of periods in these grades should be about thirty-five minutes. Three lessons a week should be given.

September—October—November.

If a good supervisor is provided, water color may be introduced into these grades, otherwise it will be much better to use ink or black water color.

Crayons may be borrowed from the lower grades for color studies.

Paint fall flowers, berries and seed pods. These may be done in mass with crayons, brush and ink or black water color.

Make color schemes from autumn leaves, berries, and flowers, to be used later.
 Draw leaves in different positions in brush or pencil outline. Draw different proportioned rectangles and place sprays of flowers, berries or seed-pods within, making pleasing compositions.

Paint fruit on the branch, apple, grapes, quince, etc.

Place these in an enclosing frame in tones of gray or color.

Paint vegetables with and without foliage.

Draw the same in accented pencil outline.

Motives may be found by cutting through seed-pods, flowers, etc. These may be used singly or in borders for decorating cover for booklets.

A tree book, a flower book, or a seed book may be made.

December—January—February.

Designs may be made to decorate articles planned for Christmas work in the manual training course.

The holly branches, Christmas tree, bells, etc., furnish motives for the designs.

Simple lettering should be taught and used as a part of the decoration for the booklet.

Squared paper will be found helpful in teaching both lettering and design.

Paint Japanese lanterns.

Draw the lanterns in accented pencil outline.

Study dress fabrics and select good ones as to color and design. Paint a plaid. Paint a rug.

Teach sphere, cube, cylinder, hemisphere, square prism, and right angled triangular prism, and the shapes of the circle, square, oblong, semi-circle, and triangle.

Draw in light pencil outline and accent, objects based on these type forms. Vegetables, kitchen articles, books, baskets, etc.

Simple groups of these may be studied in the higher intermediate grades. They may also be arranged for composition in line or flat tones.

Study landscape with bare trees. Paint winter landscape at sunset.

Make good booklet covers in which to put compositions about Lincoln and Washington. Make valentines.

March—April—May.

Paint from animals if possible, in mass with brush.

Draw from the pose in mass.

Study complementary colors.

Paint the birds as they arrive in the spring.

These may be painted with brush and with colored crayons.

Paint a spring landscape.

Draw and paint from budded twigs.

GRADES SEVEN AND EIGHT.

The period should be about forty or forty-five minutes long, two periods each week.

September—October—November.

Make large accented pencil outline studies of leaves in different positions.

Make large studies of fall growths.

Make compositions from these studies and paint in flat tones of color.

Study color schemes in connection with this work. Fall leaves and butterflies are good materials for color schemes.

Make large pencil outline sketches of groups of vegetables.

Place groups within frame lines for composition.

Make a Thanksgiving booklet cover.

December—January—February.

Make a good border design and apply it to some useful article.

Make a Christmas calendar using a suitable decoration.

Study lettering carefully.

Make a written or printed page, studying spacing. Try to apply this to essays and all written work.

Perspective:

Draw cylindrical objects studying the ellipse above and below the eye and on the eye level.

Draw cubical and rectangular objects, studying receding edges, vanishing points, etc.

Solve several geometric problems:

- a. To bisect a straight line.
- b. To bisect an angle.
- c. To erect a perpendicular at the end of a line.
- d. To erect a perpendicular at a given point.
- e. To divide a line into several equal parts.
- f. To construct a pentagon.

Make freehand working drawings of simple geometric solids such as the cube, square prism, cylinder, triangular prism, cone, sphere.

Use neat freehand lettering on these drawings, having regard to placing.

March—April—May.

Make quick large sketches of animals.

Draw in accented pencil outline from the posed figure.

Make large studies in pencil outline of hats, shoes, rubbers, etc.

Study buildings and towers from windows.

Draw the street scene with attention to perspective.

Make careful pencil sketches of budded twigs and spring flowers.

Place these in color composition.

PICTURE STUDY.

The following pictures are suggested. Selections may be made from the list. It is not expected that all of them will be taught.

GRADE I.

| | |
|------------------------------|-----------------|
| Feeding the Hens, | Millet. |
| The First Step, | Millet. |
| Can't You Talk, | Holmes. |
| St. John and the Lamb, | Murillo. |
| A Fascinating Tale, | Ronner. |
| Kittens Playing, | Ronner. |
| The Pet Bird, | Von Breman. |
| The Cat Family, | Reynolds, Adam. |
| Infant Samuel, | Reynolds. |
| Baby Stuart, | Van Dyke. |

GRADE II.

| | |
|-------------------------------------|-----------|
| Dutch Girl with Cat, | Hoecker. |
| Feeding Her Birds, | Millet. |
| The Knitting Shepherdess, | Millet. |
| Saved, | Landseer. |
| The Sick Monkey, | Landseer. |
| Miss Bowles, | Reynolds. |
| The Farm Yard, | Roll. |
| Children of the Shell, | Murillo. |
| The Divine Shepherd, | Murillo. |
| A Helping Hand, | Renouf. |
| Young Handel's First Efforts, | Dicksee. |

GRADE III.

| | |
|---------------------------------|------------------|
| School in Brittany, | Jeoffroy. |
| French Boys in School, | Jeoffroy. |
| The Age of Innocence, | Reynolds. |
| King of the Forest, | Landseer. |
| Horseshoeing, | Landseer. |
| Going to Work, | Millet. |
| Pilgrims Going to Church, | Boughton. |
| Madonna of the Chair, | Raphael. |
| At the Watering Trough, | Dagnan Bonveret. |
| The Sheepfold, | Jacque. |

GRADE IV.

| | |
|--------------------------------|------------|
| Village Blacksmith, | Herring. |
| Arrival of the Shepherd, | Le Rolle. |
| The Balloon, | Depre. |
| The Gleaners, | Millet. |
| The Angelus, | Millet. |
| Pilgrim Exiles, | Boughton. |
| The Mill, | Ruysdeal. |
| Ploughing, | Bonheur. |
| Lincoln, | De Camp. |
| Mozart and Sister, | Schneider. |

GRADE V.

| | |
|---|-----------|
| The Connoisseurs, | Landseer. |
| On the Alert, | Bonheur. |
| By the River, | LeRoll. |
| The Shepherdess, | LeRoll. |
| The Sheepfold, | Jacque. |
| On the Prairie, | Dupre. |
| Return of the Mayflower, | Boughton. |
| Sistine Madonna, | Raphael. |
| John Alden and Priscilla, | Boughton. |
| Washington Crossing the Delaware, | Leutze. |

GRADE VI.

| | |
|--------------------------------|-------------|
| Song of the Lark, | Breton. |
| End of Lahor, | Breton. |
| The Sower, | Millet. |
| Lahor, | Millet. |
| Return of the Mayflower, | Boughton. |
| Christ and the Doctors, | Hoffman. |
| Christmas Chimes, | Blashfield. |
| Stag at Bay, | Landseer. |
| Oxen Going to the Farm, | Troyon. |
| Returning to the Farm, | Troyon. |
| Mozart at Vienna, | Hamman. |

GRADE VII.

| | |
|---|------------|
| Night Watch, | Rembrandt. |
| The Syndics, | Rembrandt. |
| The Mill, | Rembrandt. |
| The Willows, | Corot. |
| Dance of the Nymphs, | Corot. |
| Lake at Ville d'Avary, | Corot. |
| Embarkment of the Pilgrims, | Weir. |
| Holy Night, | Corregio. |
| Holy Family, | Murillo. |
| The Avenue, | Hohhema. |
| Mozart and Sister before Maria-Theresa, | Ender. |

GRADE VIII.

| | |
|------------------------------------|---------------|
| Sir Galahad, | Watts. |
| Virgin, Child, and St. John, | Botticelli. |
| Frieze of the Prophets, | Sergeant. |
| The Doge, | Bellini. |
| Delphic Sibyl, | Angelo. |
| The Old Temeraire, | Turner. |
| The Golden Stair, | Burne, Jones. |
| Boston Public Library, | Seyendecker. |
| Beethoven in Bonn, | Seyendecker. |

OUTLINE FOR STUDY.

THE PICTURE.

Name of picture. Name of artist. Why it was painted. Story in the picture
Center of interest. Composition. Where it is now.

THE ARTIST.

A few facts as to nationality, when he painted, and where. Several of his best productions.

Prices and catalogues of pictures may be obtained from Horace K. Turner Co., Boston, A. W. Elson Co., Boston, and Perry Picture Co., Box 6, Malden, Mass.

INDUSTRIAL ARTS.

The following outline of hand work in the first five grades offers suggestions for the work of an entire school year in each of the various grades, and is based upon a minimum time of eighty minutes a week. In adjusting the work and time schedule, always consider the needs of the pupils and try to satisfy these needs in the best possible manner. When possible, plan to have the manual work just before or immediately after recess, as much time may be saved in distributing or collecting material. Frequently, however, particularly in the lower grades, the work can be given to a great advantage when the children are restless or after they have been subject to a nervous strain.

In order to have unity, flexibility and interest, the work has been grouped about the English, History and Geography as outlined in this manual.

As a child's first experiences and interests are bounded by the home, the aim should be first to show the child's relation to the home life and then to broaden his view, gradually leading him to an understanding and an appreciation of the social and industrial activities surrounding him, and to the realization of the dignity of useful labor. Furthermore, in so doing the child is given many opportunities for the expression of his thoughts. These expressions of thought will at first be crude, but from the frequent comparisons he will make from time to time, with his observations, the sense of symmetry and proportion will be gradually developed.

No child can do his best unless happy. As true happiness never comes through the development of selfish interests, but rather by obedience to law and respect for the rights of others, the teacher should have group problems from time to time.

Many varieties of hand work are suggested, so that the many sides of child nature may be appealed to, and by following a number of the occupations, greater skill may be developed and a broader grasp of industrial conditions may be secured by the child.

The industrial art work should be directed as well as the other duties of the child; if not directed, it will become mere "busy work" and lost its value in the education of the pupil.

Do not expect accurate work from young children, but always have in mind the ages and abilities of the several pupils. The ultimate aim is not perfection in the details of the project, but the making of useful citizens.

While various forms of hand work are suggested, undoubtedly, some teachers will find it advisable, at times, to use some other type of work better adapted to local conditions.

It is not thought that all schools will use all the projects mentioned, but the teachers will select those projects best suited to their needs.

There is no other material which will lend itself to so many purposes in the class room as paper. The use of the scissors in cutting the various figures gives the child a valuable training in the use of hand and eye.

GRADE ONE.

Stories for Illustration.

The Little Red Hen, from "Baby Days," Mary Mapes Dodge.
 The Ginger Bread Man, from "Baby Days," Mary Mapes Dodge.
 The Little Tin Soldier, Anderson.
 The Discontented Pine Tree, Anderson.
 The Three Bears in Fairy Stories and Fables, Baldwin.
 Stories of the Brownies, Bingham.

Historical Subjects for Illustration.

Indian Life: Indian Life. Indian Village. Cut from paper, tomahawks, bow and arrow, tents, assemble a number of tents so as to form a village. Make Indian girl's costume.

Thanksgiving. Cut from paper the various articles upon the Thanksgiving table. Mount them upon cardboard so as to represent the table set. Cut and mount figures to represent "Going to Grandfather's" and "Going to Church."

Washington's Birthday. Cut from paper and mount a hatchet and a cherry tree. Make a Washington's hat from paper.

Local Events. Cut figures from paper and arrange them so as to illustrate some event in local history.

Seasons and Special Days for Illustration in Paper.

Autumn. Grapes, vegetables, cutting corn, threshing, gathering apples and nuts, making cider and apple butter, husking corn, butchering.

Winter. Roasting apples, popping corn, coasting, snow balling, sleighing.

Spring. Cut and tear trees, garden tools, make pinwheels, wind mills, etc.

Hallowe'en. Make Jack-o'-lantern lamp shade.

Thanksgiving. See historical subjects.

Christmas. Cut out toys, Christmas trees, stockings, fold fireplaces.

St. Valentine's Day. Make valentines.

Lincoln's Birthday. Fold flat-bottomed boat.

Washington's Birthday. See historical subjects.

Easter. Cut out flowers, eggs, chickens, rabbits, cut and fold a chicken coop. Fold Easter basket.

May Day. Make May Day baskets and May Day gowns from paper.

Memorial Day. Make a soldier's cap from paper.

Flag Day. Story of Betsy Ross. Make flags from colored paper.

Closing Day. Illustrate traveling; cars, trolley, boat.

Supplementary Work.

Paper Weaving. Single weaving: mat, basket. Right and left weaving; book mark, mat, napkin ring.

Paper Construction. Table, chairs, bed room furniture.

GRADE TWO.

Stories for Illustration.

| | |
|----------------------------|-------------------|
| Hiawatha, | Last part. |
| Fishing and Hunting, | Mott and Dutton. |
| Eskimo Stories, | Mary E. E. Smith. |
| The Christmas Story, | Bible. |
| Robin Redbreast, | Allingham. |

Historical Subjects for Illustration.

Indian Life. Make bow and arrow, papoose cradle. Paper cutting to illustrate the Indian's method of securing food, trapping, hunting, fishing. Bead stringing.

Pilgrims. Make log cabins, and church from paper. Arrange cabins and church on sand tables so as to form a settlement. Model in sand and form paper ship Mayflower. Make Pilgrim's hat, sword, cradle. Dutch windmill.

Nature Study and Geographical Subjects for Paper Construction.

Clock, sundial, wheel, weather vane, leaves, flowers.

Modeling from clay. Birds, eggs, vegetables.

Hallowe'en. Lantern.

Discovery Day. Sailboats, "Santa Maria," "Pinta," "Nina."

Thanksgiving. Puritan costume for boy or girl from paper.

Christmas. Cornucopia.

St. Valentine's Day. Valentine.

Washington's Birthday. Soldier's hat.

Lincoln's Birthday. Sailor's cap.

Arbor Day. Posters illustrating "Tree Planting" and "Treasure Trove."

Easter. Cut out flower pot with flowers and mount.

May Day. May day basket from paper.

Memorial Day. Fan from red, white and blue paper.

Flag Day. Flags of various countries from colored paper.

Vacation Days. Tents and lighthouse from paper.

Supplementary Work.

Cardboard Construction. Napkin ring, lamp shade, pencil tray, basket, handkerchief box, pencil box, match holder, brush broom holder, bill holder, comb box.

Weaving. Spool weaving: toy reins. Card board looms: holder, rugs, hammock.

Knotting. Jute hammock, whistle chain, raffia bag, twine bag, horse reins.

Braiding. Raffia, three and five strand.

GRADE THREE.

Stories for Illustration.

Docas, the Indian Boy. Snedden.

Hiawatha, selections. Longfellow.

Historical and Geographical Subjects for Illustration.

Indian Life. "Docas." Weave small raffia baskets, make cart from cardboard, traps from cardboard and twigs, whistles from reeds and willows.

Columbus. Make in sand, a relief map of the West Indies, showing the landing place of Columbus.

In connection with Independence. Construction of forts and earth works on sand table to illustrate some of the important engagements of the War of the Revolution.

Make from wood pulp a relief map of Pennsylvania, placing at the various localities, the products of that region.

Special Days.

See suggestions for special days in grades one and two. These ideas may be carried out on a more elaborate plan for grade three.

Supplementary Work.

Weaving. Raffia rugs, jute rugs, yarn rugs, raffia cardcase.

Braiding and Weaving. Raffia picture frame, raffia brush broom holder, raffia napkin ring, raffia needle book, raffia calendar back, raffia pen wiper, raffia stamp box, raffia pin ball, raffia scissors chain, raffia bookmark, raffia mat, raffia bag or purse, raffia shaving ball, raffia scrapbox, raffia handkerchief box.

Black printing, using wooden pegs.

Local Industries or Local Improvements.

Make a study of some industry or improvement and illustrate by construction in paper or cardboard.

GRADE FOUR.

Stories for Illustration.

| | |
|--|-----------|
| The Pied Piper, | Browning. |
| The Tent Dwellers, | Dopp. |
| Thor and His Hammer in Norse Tales. | Mable. |
| Adventures of a Brownie, | Craig. |

Historical Subjects for Illustration.

Virginia Life. Model on a sand table the section of Virginia where the first settlement was made. Construct the settlers' cabins, block houses and stockades, and place them on the sand table so as to illustrate the first settlement.

New England Life. Construct log houses, blockhouses from paper. Cut out trees, corn shocks, pumpkins, men and arrange on a sand table so as to make a model of an early New England settlement.

The Dutch, Quaker and other settlements may be illustrated after the manner of the Virginian and New England settlements.

Geographical Subjects for Illustration.

Commerce. Construct a harbor on a sand table, placing lighthouse, breakwater, ships and wharves where they should be.

Lumbering. Construct a sawmill of paper or cardboard and determine its location on a mountain side modeled of sand.

Agriculture. Construct a farm house, barns, sheds, wagon, fences from cardboard. Cut from paper, horses, cattle, and chickens. Arrange all the projects so as to form a small farm.

Local industries may be treated after the manner of agriculture, commerce and lumbering.

Special Days.

Elaborate the work given in grades one and two.

Supplementary Work.

Block Printing. Make block from clay, blotting paper or some substitute.

Baskets. Splint and rattan sewing, vegetable and waste paper baskets. Rope and rush baskets and twisted raffia baskets.

Weaving. Rattan and raffia mat, raffia covering for drinking glass.

GRADE FIVE.

Historical Subjects for Illustration.

Stories of the Army. Select some important campaign of the Revolutionary War and make a relief map in sand, of the region, placing the forts and battle lines in the proper positions.

Boonesboro. Construct from paper, the cabins, block houses, stockades, and arrange so as to represent Boonesboro as nearly as possible. Use twigs if possible.

The first Steamboat. Construct a model showing the Hudson River with the Palisades and the first steamboat.

The first Railroad. The first railroad may be treated after the manner of the first steamboat.

The Civil War. Select some decisive engagements of the Civil War and reproduce as nearly as possible, the camps, battlefields, etc., on the sand table. Use sand and clay for the land and cliffs, wood for forts, paper for tents and houses.

The Great Industries. Using clay, cement and wood, make a model of a mine or a furnace.

Special Days.

See suggestions for first and second grades.

Supplementary Work.

Basketry. Tied stitch rattan and raffia baskets and mats. Indian stitch baskets. Solid raffia plaque.

Weaving. Raffia porch pillow, bead chains, belts and purses.

Knitting. Hammocks, shopping bags.

GRADES SIX, SEVEN AND EIGHT.

Cooking, Sewing and Manual Training.

If the element of interest be lacking, the child may complete the project, but add very little to his general development. With this thought in mind, more permanent results may be secured by making each problem a valuable and usable one, and one that fulfills some need, either of the school, the home, or the child. Instead of requiring a series of models, allow the child to select for construction, under the supervision of the teacher, some article which fulfills the above conditions and is not beyond the ability of the child.

It is to be expected that the first work will not be perfect and the child may spoil several parts before the project is completed, yet the completed project means something to him, he made it; it has some use and is not thrown away or relegated to the closet as an article of little or no value.

In the construction of such projects, the child is becoming familiar with the various processes, tools and their relation to actual constructional problems, as they are found in the world's work.

The guiding principles for the Cooking, Sewing or Manual Training teacher may be summed up as follows:

Whatever projects are attempted, the teacher should, before allowing the pupil to start work upon it, satisfy himself that the project

has some real value, that it is usable, that it fulfills some need of the school, home or pupil.

The various projects under cooking, sewing and shop work are suggestive only. Very few, if any schools will be able to carry out in detail every problem offered, as local conditions will be such as to necessitate a modification of some sort.

One hour and a half per week is the minimum time that should be devoted to cooking, sewing or manual training. When possible, three hours per week should be devoted to this special work.

It is suggested that cooking and sewing be given the girls in the sixth, seventh and eighth grades. An arrangement which has given good results is as follows: work in sewing in the sixth grade, while cooking and sewing alternate in the seventh and eighth. Sewing may be started in the fifth grade, but the arrangement of the years may be largely determined by the local school conditions and the needs of the community. Shop work for the boys should start not later than the sixth grade. The first year in wood working should not be devoted to formal bench work, but rather to the development of problems in which all boys are interested to a greater or lesser degree. A few such problems are suggested in the outline for the sixth grade.

Cooking.

The work in cooking should consist of lessons in care of the stove, (laying of fire where coal is the fuel commonly used), utensils, sinks, floors, tables and home; the preparation of the cheaper cuts of meat so as to be both palatable and nourishing, preparation of vegetables, rice, inexpensive desserts, baking of bread and inexpensive cakes; invalid cooking, home nursing, first aid to the injured, canning, preserving, pickling, preparation of eggs in various ways.

All work in cooking should be so planned as to meet the needs of the home. The "high cost of living" makes it imperative that all lessons be seasonable and that inexpensive recipes be used.

Sewing.

The work in sewing should be so planned that the child be taught to make simple garments and articles used in the home. The child may be taught the various stitches and operations while making something usable. A few articles that might be suggested for a beginning course in sewing are: Needle case, dusters, dish cloths, dusting caps, sewing aprons, hemming towels, spoolbags, also darning and patching (stockings and garments for this work to be brought from home). Muslin undergarments.

The child should be taught to alter a standard pattern so as to fit her needs, and cut from the same. Very little, if any, pattern drafting should be given in the course, as standard patterns are easily obtained and there is little demand in the home for the drafted pattern.

GRADE SIX.

Shop Work.

Bridge (group problem).
Water wheel.
Derrick.
Kites.
Gliders.
Weather Vanes.
Looms for lower grades.
Telegraph instruments.

Needles for weaving.
Wind Wheels.
Leather work, tooled bookmarks.
Book Binding, simple forms.
Stilts.
Skees.
Sleds.
Mesh Sticks.

GRADES SEVEN AND EIGHT.

Shop Work.

Bread board.
Meat board.
Hatrack.
Umbrella stand.
Costumer.
Taborets.
Stools.
Medicine cabinets.
Bench-hook.
Step ladder.
Flower stands.
Desks.

Tables.
Lamps.
Sundial.
Printing from plates made by etching.
Soft metal works, bowls, trays, jardinières.
Concrete work.
Garden furniture.
Pillow loom.
Wheelbarrow.
Christmas tree stand.
Bird house.

Special shop work suggested for the rural schools.

Incubators.
Wheelbarrows.
Neck yokes.
Whiffle trees.
Single tree.
Brooders.
Chicken coops.
Potato boxes.
Crates.
Berry trays.
Shelvings.
Stone boats.
Sleds.
Grading and draining of school grounds.
Painting of school buildings.
Laying of concrete walks.
Course in operation and care of gasoline engine.
Scraping and finishing school furniture.

Information concerning materials.

German knitting yarn costs about 90 cents per pound. Colored folding paper can be obtained at a nominal price.
Weaving paper can be cut at any paper factory or printing office.
White raffia costs from 15 to 20 cents a pound. Colored raffia costs 40 cents a pound.
Reeds cost from 40 cents for No. 10 to 85 cents for No. 1 per pound.
Chair cane costs 75 cents for 1,000 feet.
Rush costs for $\frac{1}{2}$ inch wide, 50 cents for 50 yds.

Tools for basket work, awl, bending and cutting pliers, per set \$1.00.
 Indian splints, 30 cents per 25 yds.
 Sail needles, for sewing raffia, 30 cents per dozen.
 Loom needles, 60 cents per dozen.
 Macrame cord, 12 cents per ball.
 Looms, Tyndall, 30 cents each.
 Colored jute, 35 cents per pound.
 Cotton for loom weaving, 40 cents per pound.
 Nickle plated punch, round die, 25 cents each
 School seissors, \$1.50 per dozen.
 Soft brass, 30 cents per pound.
 Sheet brass, 30 cents per pound.
 Leather for tooling, 40 cents per sq.ft.
 Glass beads, 15 cents per box.

The above supplies may be purchased from such firms as:

Milton Bradley Co., Philadelphia.
 Northrup, King & Co., Minneapolis, Minn.
 J. M. Thornburn & Co., New York, N. Y.
 Prang Educational Co., Chicago, Ill.

The schedules for equipment for courses in elementary cooking and wood-work given below, give the various articles absolutely necessary for such work, and the prices they have been purchased for. Local prices will, undoubtedly, differ from those given above.

Schedule of equipment, with cost of the various articles needed for a course in Elementary Cooking.

Individual Equipment.

| Articles. | Cost. | Articles. | Cost. |
|--------------------------|--------|-------------------------|--------|
| Beater dover, | \$0 10 | Pan eake, | \$0 10 |
| Beater wire, | 5 | Pan dish, | 30 |
| Boiler double, | 30 | Pan small pie, | 5 |
| Bowl mixing, | 10 | Pan large pie, | 10 |
| Bowl pint, | 5 | Pan muffin, | 10 |
| Brush scrub, | 10 | Pan sauce, | 10 |
| Cup eustard, | 5 | Pan vegetable, | 30 |
| Cup measuring, | 5 | Rolling pin, | 5 |
| Cup white, | 5 | Spoon eake, | 5 |
| Dish soap, | 10 | Spoon mixing, | 5 |
| Fork, | 5 | Spoon table, (2), | 5 |
| Griddle eake, | 5 | Spoon tea, (2), | 5 |
| Grater, | 5 | Sauere white, | 5 |
| Knife, | 5 | Sieve flour, | 10 |
| Knife, vegetable, | 10 | Strainer, | 5 |
| Plate small white, | 5 | Shaker salt, | 5 |
| Plate large white, | 10 | Shaker pepper, | 5 |
| | | Total cost, | \$3 00 |

General Equipment. (Necessary).

| | |
|--|---------|
| 10 cooking tables at \$9.00 each, | \$90 00 |
| 6 roller towels at 10c. each, | 60 |
| 10 dish towels at 5c. each, | 50 |
| 10 dish mops at 5c., | 50 |
| 10 dish towels at 10c., | 1 00 |
| 10 towel racks at 10c., | 1 00 |
| 3 glass lemon squeezers at 5c., | 15 |
| 2 doz. pint fruit jars, 50c. per doz., | 1 00 |
| 2 doz. jelly glasses, 30c. per doz., | 60 |
| 1 gas range, \$17.50 each, | 17 50 |
| 1 flour ean at 10c. each, | 10 |
| 2 sugar eans at 10c. each, | 20 |
| 1 clothes horse \$1.00 each, | 1 00 |
| 1 roller towel rack at 10c. each, | 10 |
| 1 supply table at \$3.00 each, | 3 00 |
| Total cost, | 117 25 |

General Equipment. (Not necessary but desirable).

| | |
|--|----------------|
| Table suitable for dining purposes, | \$10 00 |
| 6 chairs, | 6 00 |
| Table cloth 3 yds., | 3 00 |
| $\frac{1}{2}$ doz. napkins, | 2 00 |
| $\frac{1}{2}$ doz. knives and forks, | 4 25 |
| $\frac{1}{2}$ doz. table spoons, | 2 00 |
| $\frac{1}{2}$ doz. teaspoons, | 4 00 |
| 6 bread and butters, | 30 |
| 6 sauce dishes, | 30 |
| 6 tumblers, | 30 |
| 6 sherbet glasses, | 30 |
| 1 platter, | 10 |
| 2 vegetable dishes, | 20 |
| 2 soup plates, | 20 |
| 2 trays, | 30 |
| Total, | \$33 25 |

Total cost for equipment.

| | |
|--|-----------------|
| 10 individual equipments, at \$3.00, | \$30 00 |
| General equipment, | 117 25 |
| Total cost necessary equipment, | \$147 25 |

Schedule of equipment, with cost of the various tools, needed for a course in Elementary Wood-work.

Individual Equipment.

| | |
|---|---------------|
| Chisel, Buck Bros. handled firmer 3-8 inch, | \$0 20 |
| Chisel, Buck Bros. handled firmer 3-4 inch, | 22 |
| Driver, screw Champion 4 inch blade, | 10 |
| Duster, Bench, | 25 |
| Gauge, Beech Marking 1-2 inch, | 21 |
| Hammer, Bell Face Claw 11 oz., | 37 |
| Knife, Sloyd, | 25 |
| Mallet, Round Hickory 3 inch diameter face, | 09 |
| Plane, Jack Stanley No. 5, | 1 78 |
| Plane, Block Stanley No. 220, | 50 |
| Rule, 2 ft. single joint, | 20 |
| Saw, Back Disston No. 4-10 inch, | 82 |
| Square, Try Stanley No. 20 7-12 inch, | 17 |
| Total, | \$5 16 |

General Equipment.

| | | |
|---|-----------|----------------|
| 5 Awl, Brad, | 10 each | \$00 50 |
| 10 Benches, | 6 75 each | 67 50 |
| 2 Bits, auger, Russell Jennings, 1-4 inch, | 25 each | 50 |
| 2 Bits, auger, Russell Jennings, 3-8 inch, | 32 each | 64 |
| 2 Bits, auger, Russell Jennings, 1-2 inch, | 36 each | 72 |
| 2 Bits, auger, Russell Jennings, 3-4 inch, | 45 each | 90. |
| 2 Brace, 8 inch Barber Ratchet, | 90 each | 1 80 |
| 2 Counter, Sinks Rose 5-8 inch, | 12 each | 24 |
| 2 Cans, Copperized Oil, | 10 each | 20 |
| 2 Clamps, Carpenters' Steel Bar 2 1-2 inch, | 1 10 each | 2 20 |
| 2 Dividers, Winged 6 inch, | 12 each | 24 |
| 2 Planes, Bailey Adjustable Smoothing No. 3, | 1 20 each | 2 40 |
| 2 Saws, Cross cut Disston No. 7-10 pt. 26 inch, | 1 10 each | 2 20 |
| 1 Saw, Rip Disston No. 7-5 pt. 26 inch, | 1 10 each | 1 10 |
| 1 Saw, turning 18 inch, | 90 each | 90 |
| 2 Shaves, Spoke Stanley No. 5, | 25 each | 50 |
| 1 Shave, Draw Whites Coach Makers No. 6, | 80 each | 80 |
| 1 Square, Carpenters' Steel 24 inch, | 90 each | 90 |
| 2 Stone, India Combination 2 x 6 inches, | 50 each | 1 00 |
| 2 Screws, Hand No. 811, | 70 each | 1 40 |
| 1 Grindstone 20 inch, | 4 75 each | 4 75 |
| Total, | | \$91 39 |

Total cost for equipment.

| | | |
|--|-------------|----------------|
| 10 Individual equipments, | \$5 16 each | \$51 60 |
| General equipment, | | 91 39 |
| Total cost of necessary equipment, | | <hr/> \$142 99 |

Books of Reference.

| | |
|--|--|
| Hand-Loom Weaving, | Mattie P. Todd. Rand, McNally & Co., New York. |
| Industrial Work for Public Schools, | Holton & Rollins. Rand, McNally & Co., New York. |
| Correlated Hand-work, | Trybom & Keller. Speaker Printing Co., Detroit. |
| Hand-work for Kindergartens and Primary Schools, | Jane L. Hoxie. Milton Bradley Co., Springfield, Mass. |
| Primary Manual Training, | Caroline F. Culter. Educational Publishing Company, Boston. |
| Seat Work and Industrial Occupations, | Gillman & Williams. The Macmillan Company, New York. |
| Construction Work, Rural and Elementary Schools, | Virginia McGan. A. Flanagan Company, Chicago. |
| Organized Hand Work, No. 1, Bead Stringing, | Elizaheth Harrison. Published by Chicago Kindergarten College. |
| Spool Knitting, | Mary A. McCormack. |
| Paper Sloyd for Primary Grades, | Edna Anne Rech. Ginn & Co., Boston. |
| School Drawing, a Real Correlation, | Fred Hamilton Daniels. Milton Bradley Co., Springfield, Mass. |
| Raffia and Reed Weaving, | Elizabeth Sanhorn Knapp. Milton Bradley Co., Springfield, Mass. |
| The Basket Maker, | Luther Weston Turner The Manual Arts Press, Peoria, Illinois. |
| How to Make Baskets, | Mary White. Doughleday, Page & Co., New York. |
| Varied Occupations in String Work, | Louisa Walker. The Macmillan Company, New York. |
| King's Wood-work and Carpentry, | American Book Co., New York. |
| Elements of Construction, | American Book Co., New York. |
| Elements of Wood-work, | American Book Co., New York. |
| Manual Art with the Scissors, | Mary L. Moran. Milton Bradley Co., Springfield, Mass. |
| Scissors Pictures, Book 1, Book 2, | Ethel Blain Barr. Rand, McNally & Co., New York. |
| Constructive Work, | Edward F. Worst. A. W. Mumford, Chicago. |
| Cardboard Construction, | J. H. Tryhom. Milton Bradley Co., Springfield, Mass. |
| Primary Manual Work, | Ledgard & Beckenfeld. Milton Bradley Co., Springfield, Mass. |

The following books may be secured from the Manual Arts Press, Peoria, Illinois:

| | |
|---|----------------------|
| Poultry Appliances and Handicrafts, | G. B. Fiske. |
| Knotting and Splicing, | Paul M. Hasluck. |
| Wind Mills and Wind Motors, | F. E. Powell. |
| The Arts Crafts for Beginners, | Frank G. Sanford. |
| Coping Saw Work, | Ben. W. Johnson. |
| Poultry Architecture, | G. B. Fiske. |
| The Construction & Flying of Kites, | Chas. M. Miller. |
| Occupations for Little Fingers, | Sage & Cooley. |
| Practical and Artistic Basketry, | Laura R. Tinsley. |
| School Needlework, | Olive C. Hapgood. |
| Handicraft for Girls, | Isabelle McGlanflin. |
| Elements of the Theory & Practice of Cookery, | Williams & Fisher. |
| A Sewing Course, | Mary A. Woolman. |
| Concrete Pottery & Garden Furniture, | Ralph C. Davidson. |
| Wood-work for Schools on Scientific Lines, | Bailey & Pollitt. |
| Problems in Furniture Making, | Fred D. Crawshaw. |
| Mission Furniture, How to Make It, | |
| Manual Training Toys, | H. W. Moore. |

Exhibition.

Save the various articles made by the pupils until a suitable time for an exhibition. Patrons' days and closing days are frequently desirable for such exhibits.

MUSIC.

There should be no school in the State where regular exercises in music do not occur. It is natural for a normal child to sing. Music not only affords a new means of expression, but, it produces feeling and emotions that greatly enrich the soul-life of the child.

Americans often marvel at the musical ability of the foreigners who come in such large numbers to our State, and the best explanation of the phenomenon is that they are reared in a musical atmosphere, not only in the home, but in the school. In order to develop such conditions here as are admittedly desirable, our schools must universally put more emphasis upon the arts as means of education. Teachers are needed who can do creditable work not only in song-singing, but in the scientific teaching of the reading of music.

The main object in music study is the acquisition of a love for good music and the technical side of the work is a means and not the end of the work. The other studies in the curriculum are not more important. While the study of music is pleasurable, it is not a mere pastime. It demands close attention not only of the eye, but of the ear as well.

In order to obtain the best results teachers should insist upon the correct position of the body so that the vocal organs are not hindered or restrained. The physical conditions necessary for good singing are the same as for good speaking, and drill in the one will supplement the work in the other.

Slow singing should be avoided, and necessity for so-called team work, is nowhere so apparent as in the music recitation. Very high notes may be sung in falsetto tones to prevent injury to young voices, and notes that are too low are perhaps more injurious to the voice. Special care should be taken to avoid straining a voice that is in the process of changing.

From the primary grades to the end of the course children should be encouraged to sing alone. It gives them confidence and power and fits them for leadership in later years. If there is no musical instrument in the room, it is very necessary for the teacher to have a pitch-pipe, because the proper pitching of every selection cannot be left either to the teacher or pupil unaided. The Congdon chromatic pitch-pipe should be used during the first two years.

HOW TO USE THE C PITCH PIPE.

This pitch-pipe sounds C in the third space of the staff. This tone is used as high Do in the key of C.

Sharp Signatures. Key of G—Sing down to Sol and call Sol, Do.

Key of D—Sing up to Re, and call Re, Do.

Key of A—Sing down to La, and call La, Do.

Key of E—Sing up to Mi, and call Mi, Do.

Flat Signatures. Key of F—Call the sound of the pitch-pipe Sol and sing down to Do.

Key of B flat—Call the sound of the pitch-pipe Re, and sing down to Do.

Key of E flat—Call the sound of the pitch-pipe La, and sing up to Do.

Key of A flat—Call the sound of the pitch-pipe Mi, and sing down to Do.

The best work in music depends on the services of a trained supervisor, but when districts find this plan impractical the individual teacher may secure very satisfactory results by wisely adapting one of the numerous courses in music that are published for that purpose. During the early school years rote singing constitutes the greater part of the work. Songs suitable to the various seasons and holidays, as well as the patriotic songs should be taught in every grade. Motion songs are enjoyed by the children and give pleasing variety to the work.

The study of the scale may begin very soon after the pupil enters school. The syllables and figures should be used to designate the tones. Repetition and constant review are essential to progress in music. It is wise for the teacher to listen when the children sing and for them to listen when the teacher sings. Loudness is not one of the objective points in music. Smoothness involving control, and proper phrasing in order to get the best effects, are more desirable.

The ideas of rythm and time are very essential to successful work in the higher grades. This subject affords an unequalled opportunity for the teacher to exercise his personal power in getting control of his school. The aim of the study of music in the public schools is not so much to produce artists in music, as it is to train citizens with artistic tastes and to afford some means of satisfying them.

SUGGESTED OUTLINE FOR COURSE.

FIRST YEAR.

1. Thirty to forty rote songs.
2. Major scale.
3. The phrase.
4. Easy work in intervals.
5. Special emphasis upon rhythm, through muscular action.

SECOND YEAR.

1. Rhythmic dictation.
2. One, two, three and four beat notes and rests.
3. Twenty to thirty rote songs.
4. Phrase carefully developed.
5. Staff, clef and letters, or pitch names.
6. Interval work continued.

THIRD YEAR.

1. Two notes in time of one count.
2. Ten to twenty rote songs.
3. Finding "Do" from key signatures.
4. Two-part singing.
5. Written work, including staff, clef, key, signatures, etc.

FOURTH YEAR.

1. Occasional rote songs.
2. Finding keys from signatures.
3. Finding key from C pitch-pipe.
4. Chromatics, represented by sharp, double-sharp, or cancel.
5. Two-part singing.

FIFTH YEAR.

1. The arithmetic of music; various types of time.
2. Chromatics, represented by flat, or cancel.
3. Writing dictation and chromatic scales.

SIXTH YEAR.

1. Review and extension of time.
2. Chromatics.
3. Minor scales.
4. Three-part singing begun.
5. Master all keys, major and minor.

SEVENTH AND EIGHTH YEARS.

1. Summary of all previous work.
2. Teach syncopation.
3. The bass clef.
4. Four-part singing.
5. Chord formation.
6. History of music and lives of musicians.

MUSIC BOOKS AND SONGS BY GRADES.

FIRST AND SECOND YEARS.

Books of Children's Songs, by Eleanor Smith, Silver, Burdette & Co.
 Books of Children's Songs, by Jessie Gaynor, John Church Co.
 Common School Book of Vocal Music, Silver, Burdette & Co.
 Modern Primer, Silver, Burdette & Co.
 Modern Manual and Primer, American Book Co.
 Natural Rote Song Book, American Book Co.
 The New American Music Course, The Macmillan Co.
 Songs in Season, Flanagan.
 Songs and Games for Little Ones, by Walker & Jenks, Oliver Ditson & Co.
 New Education Music Course.
 Teacher's Edition for Elementary Grades, Ginn & Co.
 Earth, Air and Sky in Song, Neidlinger, American Book Co.

THIRD, FOURTH, FIFTH AND SIXTH YEARS.

Song Year Book, Helen Place, Silver, Burdette & Co.
 Silver Song Series, Silver, Burdette & Co.
 Codas, Ginn & Co.
 Songs of All Lands, Mathews, American Book Co.
 Franklin Square Collections, American Book Co.
 The American Songster, Tuller, Meredith Co., N. Y.

SEVENTH AND EIGHTH YEARS.

McCaskey's Favorite Songs and Hymns, American Book Co.
 Songs of the Flag and Nation, Hinds, Noble & Eldridge.
 Brewer's Collections, Orville Brewer.
 National School Library of Song, Ginn & Co.
 The School Singer, Ginn & Co.
 The Academy Song Book, Ginn & Co.
 How to Teach Music in Public Schools, Hamlin E. Cogswell, Indiana, Pa

MORAL EDUCATION.

It is generally agreed that moral character is a fundamental aim of education. Educators, however, do not all agree on the way it is to be accomplished. The life of the school affords abundant opportunities for moral training. The important point is that the child develop right attitudes of mind from which correct actions will result. The pupil must learn early in his school life that he has moral obligations. It is necessary for him to obey, to tell the truth and to accord others the rights due them in order that the school may exist.

Ideals of conduct as found in fables, stories, myths, literature, history and other subjects of the curriculum no doubt furnish the

best type of moral training. Every subject and every activity should inspire and guide pupils toward high moral purposes. "A mind filled with worthy interest, high ideals and helpful activities has no room for evil." Dr. John Dewey says: "Every act of attention on the part of the pupil, every concentration on study that excludes distracting stimuli; every physical restraint as sitting quietly when necessary; every form of physical control, as when guiding the pen in writing; every subordination of present pleasure to future satisfaction, requires the same activity of will that moral conduct requires, and results in moral training through the formation of habits."

Children should be trained in the common virtues such as self-control, obedience, honesty, truthfulness, industry, patriotism and cheerfulness. The government of the school itself, the class exercises, the study hour, the recreation periods—all furnish concrete cases for effective lessons in these virtues.

Children should know their duties to parents and other members of the family; to those in authority; to the aged and to the poor. The child should be taught that he is a member of a family and of a school and that co-operation is essential to all the members of the social group. It is only by thinking right and doing right that social efficiency, the goal in education, may be attained.

The personality of the teacher is a potent force in moral education. The teacher's habits and qualities by daily association are reflected in the character of the pupils. Teachers should be positive in character. They should teach both by example and precept.

PHYSICAL EDUCATION.

One of the chief aims of modern education is to take care of the physical, as well as the mental development of the child. The attitude of the public toward better conditions for health is exemplified in the general interest relating to medical inspection, practical architecture, improved systems of heating and ventilation, sanitation, safe-guarding against contagious diseases, providing play grounds for children, open air schools and pure drinking water.

A knowledge of the physical condition of each child will be of great value to the teacher. The information will greatly aid in arranging the daily schedule; it will assist in fixing just requirements; and guide the teacher in the proper selection of seats for those who require consideration. Each teacher should be filled with a desire to study and know the individual child.

During the school hours there should be, especially in the primary grades, frequent periods for relaxation, a variable temperature, se-

cured by admitting cold air at different intervals. The most desirable temperature is between 67 degrees F. and 70 degrees F. As a rule rooms are kept too warm for the well being of all. Pupils need good light, though their eyes should be protected by blinds from the glaring brightness of the sun. Lace curtains and potted plants should never shut out the much needed light.

For the purpose of securing co-ordination of muscles and team work, exercise should be provided in the forms of marches as in single file, by twos, by fours, both forward and backward; of movements as chopping, rowing, bending forward, backward and aside; rotary movements of the limbs and suitable games involving activities in which there is free expression. No community can afford to neglect the health of its children.

SUGGESTED LIST OF BOOKS FOR SMALL LIBRARY.

BOOKS FOR TEACHERS.

Reading in public schools,—T. H. Briggs and L. D. Coffman.
How to tell stories to children,—Sara Cone Bryant.
Stories to tell to children,—Sara Cone Bryant.
Literature in the common school,—John H. Cox.
Teaching to read,—James L. Hughes.
In the child's world: morning talks and stories,—Emilie Poulsson.
Glimpses of child nature for teachers and parents,—Angelina W. Wray.

FABLES, MYTHS AND LEGENDS.

Aesop's fables.
Alice's adventures in wonderland,—Chas. L. Dodgson.
Cinderella and other stories,—Andrew Lang.
Jack the giant killer, etc.,—Andrew Lang.
Little red riding hood,—Andrew Lang.
Fairy tales,—Marion F. Lansing.
Classic stories for little ones,—Mrs. Lida B. McMurtry.
King of the golden river,—John Ruskin.
Fables and folk stories,—Horace E. Scudder.
Arabian nights,—Edited by E. E. Hale.
Tanglewood tales,—Nathaniel Hawthorne.
The water babies,—Charles Kingsley.
Book of legends,—Horace E. Scudder.
Jewish fairy tales and fables,—Aunt Naomi.
Story of Aeneas,—M. Clarke.
The Wagner story book,—William Henry Frost.
Achilles and Hector,—Agnes Spofford Gale.
Myths of Greece and Rome,—Helene A. Guerber.
Celtic fairy tales,—Joseph Jacob.
Adventures of Ulysses,—Charles Lamb.
Norse stories retold from the Eddas,—Hamilton W. Mabie.
The boy's King Arthur,—Sir Thomas Malory.

NATURAL SCIENCE AND ANIMAL STORIES.

The early cave-men—Katherine Dopp.
The tree-dwellers,—Katherine Dopp.
The fly-aways and other seed travelers,—Frank M. Fultz.
Row-wow and mew-mew,—Georgiana M. Craig.
Friends in feathers and furs,—James Johonnot.
Just so stories for little children,—Rudyard Kipling.
Some useful animals,—John and Caroline Monteith.

Stories of starland,—Mary Proctor.
 Brooks and brook basins,—Alexis E. Frye.
 Lolami in Tusayan.
 The later cave-men,—Katherin Dopp.
 Flowers and their friends,—Margaret W. Morley.
 Ten common trees,—Susan Storkes.
 Tenants of the trees,—Clarence Hawkes.
 Neighbors with claws and hoofs,—James Johonnot.
 The jungle book,—Rudyard Kipling.
 The biography of a grizzly,—Ernest Thompson Seton.
 Black Beauty,—Anna Sewell.
 The spinner family,—Alice Jean Patterson.
 Afoot and afloat,—John Burroughs.
 Sharp eyes,—Wm. H. Gibson.
 Nature study and life,—C. F. Hodge.
 Giant sun and his family,—Mary Proctor.
 The A. B. C. of electricity,—W. H. Meadowcroft.
 About the weather,—Mark W. Harrington.
 The earth in past ages,—Sophie B. Herrick.
 Animal book and camp-fire stories,—Dan Beard.
 The home aquarium,—Eugene Smith.
 How to attract the birds,—Nellie Blanchan Doubleday.
 Our common birds,—John B. Grant

USEFUL ARTS.

First years in handicraft,—Walter J. Kenyon.
 American inventions and inventors,—Wm. A. Mowry.
 Great American industries. Minerals,—Wm. F. Rocheleau.
 Great American industries. Products of the soil,—Wm. F. Rocheleau.
 Great American industries. Manufactures,—Wm. F. Rocheleau.
 Good health,—Frances Gulick Jewett.
 How the world is clothed,—Frank G. Carpenter.
 How the world is fed,—Frank G. Carpenter.
 Industries of to-day,—Martha A. L. Lane.
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